

Loc. 5165

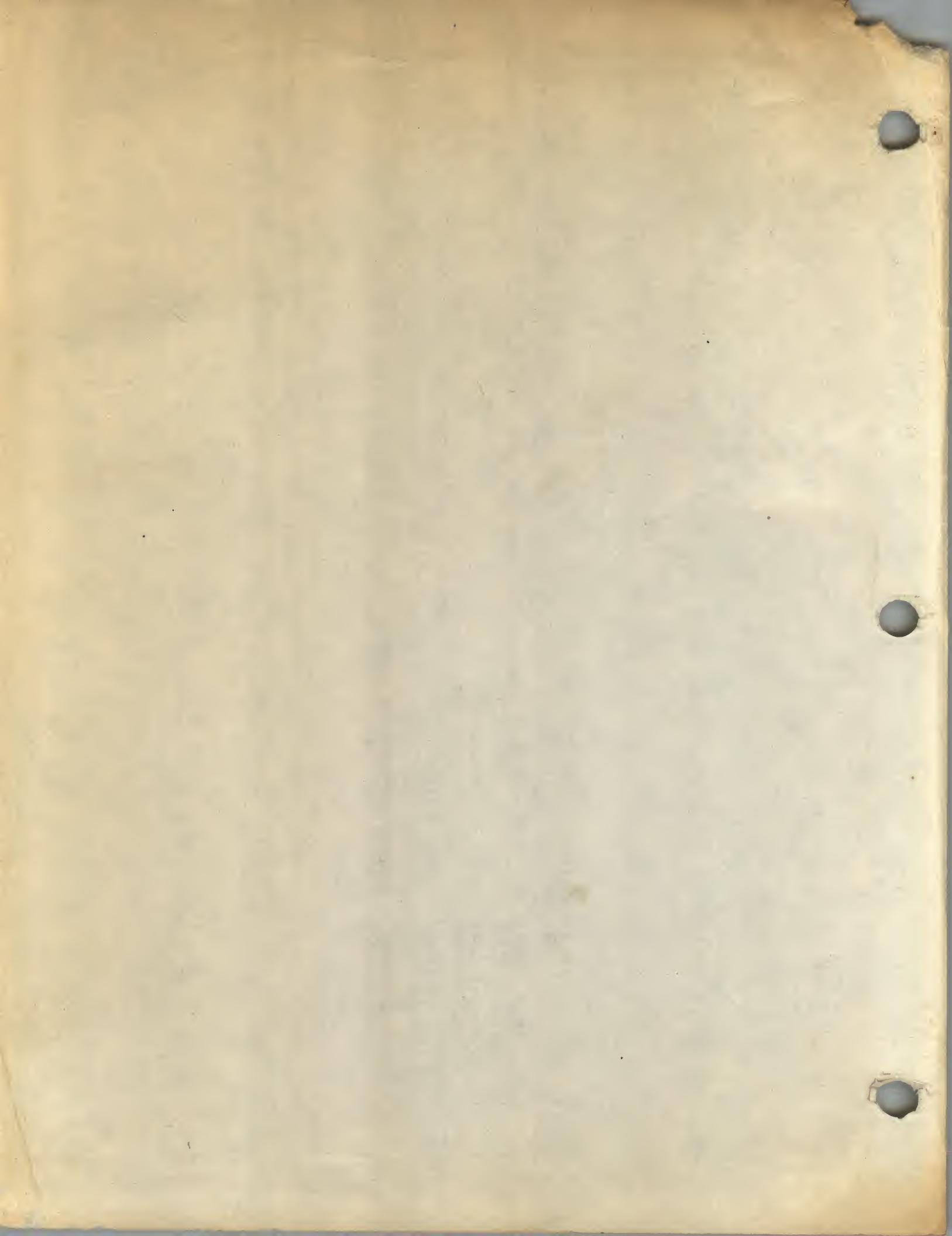
TAPE #2 SIDE A
FILE 8

IDENTIFICATION

PRODUCT CODE!	MAINDEC-BE0DBAC-D
PRODUCT NAME!	OKSE CLOCKS DIAGNOSTIC
DATE CREATED!	OCTOBER 8, 1971
MAINTAINER!	DIAGNOSTIC PROGRAMMING GROUP
AUTHOR!	JOHN VROBEL

COPYRIGHT (c) 1971

DIGITAL EQUIPMENT CORPORATION



2/4/5

THE DK8-E CLOCKS DIAGNOSTIC IS DESIGNED TO VERIFY CORRECT OPERATION OF THE DK8-EA, DK8-EC, DK8-ES, AND DK8-EP REAL TIME CLOCK OPTIONS. THE PROGRAM UTILIZES AND TESTS 1071'S ASSOCIATED WITH THE DK8-EA LINE, DK8-EC CRYSTAL, AND THE DK8-EP/DK8-ES PROGRAMMABLE REAL TIME CLOCKS.

2. REQUIREMENTS

2.1 EQUIPMENT

A PDP8/E WITH THE DK8-EA, DK8-EC, DK8-ES, OR THE DK8-EP OPTION INSTALLED AND AN ASR-33 TELETYPE OR EQUIVALENT. A SPECIAL TEST CABLE IS NECESSARY TO CONNECT THE CLOCK FRONT PANEL TO THE PDP8/E POWER SUPPLY FOR THE DK8-EA CLOCK OPTION.

A SPECIAL CABLE IS NECESSARY TO CONNECT THE DK8-EA CLOCK MODULE TO THE PDP8/E POWER SUPPLY FOR THE DK8-EA CLOCK OPTION.

2.2 STORAGE

THE PROGRAM OCCUPIES LOCATIONS 00000-6600.

2.3 PRELIMINARY PROGRAMS

ALL PROGRAMS FOR THE BASIC PDP8/E MUST HAVE BEEN RUN SUCCESSFULLY.

3. LOADING PROCEDURE

3.1 METHOD

THE PROGRAM IS LOADED INTO BANK 0, USING THE STANDARD BINARY LOADER TECHNIQUE.

4. STARTUP PROCEDURE

4.1 CONTROL SWITCH SETTINGS

<u>SWR0=1</u>	FOR DK8-EP/DK8-ES REGISTER TEST
<u>SWR1=1</u>	FOR DK8-ES SCHMITT TRIGGER LOGIC TEST
<u>SWR2=1</u>	FOR INHIBIT ERROR PRINT OUT
<u>SWR3=1</u>	FOR INHIBIT ERROR BELL
<u>SWR4=1</u>	FOR INHIBIT ERROR HALT
<u>SWR5=1</u>	FOR ENTER SCOPE LOOP ON ERROR
<u>SWR6=1</u>	FOR LOOP ON NON-FAILING TEST
<u>SWR7=1</u>	FOR DK8-EP/DK8-ES EXTERNAL PULSE SCOPE LOOP TEST

SWR9-E FOR DK8-EES EXTERNAL CLOCK SCOPE LOOP TEST

4.1.1.1 FREQUENCY SWITCH SETTINGS FOR DK8-EA/DK8-EC TEST

SHR9-1180 TEST 1 CPS CRYSTAL CLOCK
SHR9-1181 TEST 50 CPS CRYSTAL CLOCK
SHR9-1182 TEST 50 CPS LINE CLOCK
SHR9-1183 TEST 60 CPS LINE CLOCK
SHR9-1184 TEST 500 CPS CRYSTAL CLOCK
SHR9-1185 TEST 5000 CPS CRYSTAL CLOCK

4.1.2 STARTING ADDRESS
020000000000

'THE STARTING ADDRESS IS 0200 OCTAL.'

4.1.3 OPERATOR ACTION
020000000000

4.1.3.1 DK8-EA/DK8-EC TEST
020000000000

WITH THE PROGRAM IN BANK 0, SET SWITCH REGISTER TO 0200.

PRESS ADDRESS LOAD;

SET THE SWITCH REGISTER TO 0000,

SET SWITCH REGISTER TO INDICATE FREQUENCY OF DK8-EA
OR DK8-EC CLOCK UNDER TEST,

PRESS CLEAR AND THEN PRESS CONTINUE,

THE PROGRAM SHOULD RUN UNTIL AN ERROR OCCURES OR UNTIL
STOPPED BY THE OPERATOR,

THE TTY WILL SIGNAL "DKBE PASS COMPLETE" AT
THE COMPLETION OF EVERY PASS,

4.1.3.2 DK8-EP/DK8-EES REGISTER TEST
020000000000

WITH THE PROGRAM IN BANK 0, SET SWITCH REGISTER TO 0200.

PRESS ADDRESS LOAD;

SET SWITCH REGISTER TO 0000,

SET SWITCH REGISTER TO INDICATE DK8-EP/DK8-EES REGISTER TEST,

PRESS CLEAR AND THEN PRESS CONTINUE,

THE PROGRAM SHOULD RUN UNTIL AN ERROR OCCURES OR UNTIL
STOPPED BY THE OPERATOR,

THE TTY WILL SIGNAL "DKBE PASS COMPLETE" AT
THE COMPLETION OF EVERY PASS,

WITH THE PROGRAM IN BANK 0, SET THE SWITCH REGISTER TO 0200.

PRESS ADDRESS LOAD,

SET SWITCH REGISTER TO 0000,

SET THE SWITCH REGISTER TO INDICATE DK8-EP/DK8-ES SCHMITT TRIGGER INPUT LOGIC TEST,

PRESS CLEAR AND THEN CONTINUE,

THE PROGRAM SHOULD RUN UNTIL AN ERROR OCCURES OR UNTIL STOPPED BY THE OPERATOR,

THE TTY WILL SIGNAL "DK8-E PASS COMPLETE" AT THE COMPLETION OF EVERY PASS,

4:3:4 DK8-EP/DK8-ES EXTERNAL PULSE SCOPE LOOP TEST

WITH THE PROGRAM IN MEMORY, SET THE SWITCH REGISTER TO 0200.

PRESS ADDRESS LOAD,

SET SWITCH REGISTER TO 0000,

SET SWITCH REGISTER TO INDICATE EXTERNAL PULSE SCOPE LOOP TEST,

PRESS CLEAR AND THEN PRESS CONTINUE.

USE OSCILLOSCOPE TO VERIFY 40 MICRO SECOND PULSE RATE AT FJ2, FJ1, HMI, AND HM2 ON THE DK8-EP/DK8-ES MODULES,

USE OSCILLOSCOPE TO VERIFY 40 MICRO SECOND PULSE RATE AT OVERFLOW ON DK8-ES CLOCK FRONT PANEL, (DK8-ES ONLY)

4:3:5 DK8-ES EXTERNAL CLOCK SCOPE LOOP TEST

WITH THE PROGRAM IN MEMORY, SET THE SWITCH REGISTER TO 0200.

PRESS ADDRESS LOAD,

SET SWITCH REGISTER TO 0000,

SET SWITCH REGISTER TO INDICATE EXTERNAL CLOCK SCOPE LOOP TEST,

PRESS CLEAR AND THEN PRESS CONTINUE,

GROUND CLOCK IN ON DK8-ES CLOCK FRONT PANEL,

THE TTY BELL WILL SIGNAL, IF AN EXTERNAL CLOCK WAS RECEIVED,

OPERATING PROCEDURE

OPERATIONAL SWITCH SETTINGS

NONE
ROUTINE ABSTRACTS

NONE

OPERATOR TEST SELECTION
DK8-EA OR DK8-EC CLOCK OPTION

INSTALL DK8-EA OR DK8-EC CLOCK OPTION

RUN DK8-EA/DK8-EC TEST 4;3;1.

DK8-EP CLOCK OPTION
DK8-EA/DK8-EC TEST 4;3;2.

INSTALL DK8-EP CLOCK OPTION,

RUN DK8-EP/DK8-ES REGISTER TEST 4;3;2;

RUN DK8-EP/DK8-ES EXTERNAL PULSE SCOPE LOOP TEST 4;3;4;

DK8-ES CLOCK OPTION
DK8-EA/DK8-ES CLOCK OPTION

INSTALL DK8-ES CLOCK OPTION,

RUN DK8-EP/DK8-ES REGISTER TEST 4;3;2;

CONNECT EXTERNAL SOURCE FREQUENCY LOCATED AT J5 ON THE PDP8/E POWER SUPPLY TO THE EXTERNAL SCHMITT TRIGGER INPUT LOGIC VIA THE DK8-ES CLOCK FRONT PANEL WITH THE SPECIAL TEST CABLE,

SET THE THREE SLOPE SELECTION SWITCHES ON DK8-ES CLOCK FRONT PANEL TO THE POSITIVE POSITION,

ADJUST THE THREE INPUT THRESHOLD POTENTIOMETERS ON DK8-ES CLOCK FRONT PANEL TO THE CENTER POSITION,

RUN THE DK8-ES SCHMITT TRIGGER INPUT LOGIC TEST 4;3;3;

RUN THE DK8-EP/DK8-ES EXTERNAL PULSE SCOPE LOOP TEST 4;3;4;

RUN THE DK8-ES EXTERNAL CLOCK SCOPE LOOP TEST 4;3;5.

ERRORS
DK8-EP/DK8-ES

ALL RECOVERABLE ERRORS ENCOUNTERED IN THE PROGRAM WILL
REIN AN ERROR HALT OR AN ERROR TYPEOUT AND THEN
AN ERROR HALT.

6.1 ERRORS AND DISRUPTION

6.1.1 ERROR HALTS

ERROR HALTS IN PROGRAM ARE AS FOLLOWS:

EHLT11 MONITOR ERROR HALT, READ ERROR TYPE OUT,
EHLT21 SKIP TRAP, CLZE
EHLT31 SKIP TRAP, CLOE
EHLT41 SKIP TRAP, CLOE
EHLT51 SKIP TRAP, CLAB
EHLT61 SKIP TRAP, CLEN
EHLT71 SKIP TRAP, CLSA
EHLT101 SKIP TRAP, CLBA
EHLT111 SKIP TRAP, CLCA

6.1.2 ERROR TYPEOUTS

ERROR TYPEOUTS IN PROGRAM ARE AS FOLLOWS:

— TEST XXXX FAILED, STARTING ADDRESS XXXX

THE GOOD AC = XXXX AND BAD AC = XXXX

CLOCK BUFFER REGISTER AND AC TRANSFER FAILED

CLOCK COUNTER REGISTER AND AC TRANSFER FAILED

CLOCK ENABLE REGISTER AND AC TRANSFER FAILED

THE AC WAS CHANGED BY A CLOCK !OT

PROGRAM INTERRUPT TAILED, NO INTERRUPT EXPECTED

PROGRAM INTERRUPT FAILED, INTERRUPT EXPECTED

CLOCK SKIP FAILED, NO SKIP EXPECTED

— CLOCK SKIP FAILED, SKIP EXPECTED

CLOCK OUTPUT FAILED, CLOCK FREQUENCY FAST

CLOCK OUTPUT FAILED, CLOCK FREQUENCY SLOW

6.2 ERROR RECOVERY

ALL ERRORS ENCOUNTERED MUST BE CORRECTED BEFORE PROCEEDING
IN THE PROGRAM. IN ALL CASES, THE RECOVERY IS

FURTHER INFORMATION,

SCOPE LOOPS

6;2;1
A SCOPE LOOP IS AVAILABLE FOR ALL MONITOR ERROR HALTS;
THE OPERATOR MAY ENTER A SCOPE LOOP AFTER A MONITOR
ERROR HALT BY DOING THE FOLLOWING.

SET SWR4=1 TO INDICATE INHIBIT ERROR HALT.

SET SWR5=1 TO INDICATE ENTER SCOPE LOOP.

SET SWR6=1 TO INDICATE LOOP ON THIS TEST.

PRESS CLEAR AND THEN PRESS CONTINUE.

SET SWR2=1 TO INHIBIT ERROR TIMEOUT.

SET SWR3=1 TO INHIBIT ERROR BELL.

RESTRICTIONS

STARTING RESTRICTIONS

NONE

OPERATING RESTRICTIONS

THE PROGRAM MUST RESIDE IN BANK 0:

EDP6E WITH THE DK8=EA, DK8=EC, DK8=ES, OR THE DK8=EP
CLOCK OPTION INSTALLED.

THE EXT. CPS SOURCE USED IN THE DK8=ES EXTERNAL SCHMITT
TRIGGER INPUT LOGIC TEST MUST BE DISCONNECTED WHEN
RUNNING THE DK8=EP/DK8=ES REGISTER TEST.

THE PDP8E MUST BE RUNNING FAST CYCLE "1.2" MICRO. SECONDS;
ALL CLOCK OUTPUTS SHOULD BE VERIFIED WITH AN OSCILLOSCOPE
TO INSURE CORRECT OPERATION.

INCIDENCE

SPECIFICATIONS

THE DK8=EA CLOCK COUNTS AT INTERVALS OF TIME AT 100 OR
120 TIMES A SECOND. THE FREQUENCY IS DETERMINED BY THE
FULL WAVE RECTIFIER NETWORK WHICH OPERATES OFF THE
50 OR 60 CPS LINE WHICH EVER IT MAY BE. THIS MAKES THE
CLOCK CAPABLE OF SUPPLYING PROGRAM INTERRUPT REQUESTS
AT A RATE OF 100 OR 120 TIMES A SECOND.

EXPLANATION TIME

OK8-EA7DOKB8EC TEST, APPROXIMATELY 2.5 MINUTES PER PASS,
OK8-EP7DOKB8ES REGISTER TEST, APPROXIMATELY 3.5 MINUTES
PER PASS.

OK8-EES SCHMITT TRIGGER INPUT LOGIC TEST, APPROXIMATELY
2 MINUTES PER PASS;

PROGRAM DISCUSSION

9'.1 OK8-EA OR OK8EBC CLOCK
OPERATION: 6133

THE PROGRAM EXERCISES AND TESTS THE FOLLOWING LOT'S FOR CORRECT
OPERATION AND FUNCTION:

SKIP ON A CLOCK FLAG AND CLEAR THE FLAG (CLSK)

OCTAL CODE: 6133
OPERATION: SENSES THE CLOCK FLAG WHICH IS SET WITH
EACH CLOCK PULSE. IF IT IS SET, THE NEXT
SEQUENTIAL INSTRUCTION IS SKIPPED AND THE
FLAG IS THEN CLEARED.

ENABLE CLOCK INTERRUPT (CLEI)

OCTAL CODE: 6131
OPERATION: ENABLES THE CLOCK FLAG, WHICH IS SET WITH
EACH CLOCK PULSE, TO CAUSE A PROGRAM
INTERRUPT REQUEST. THE FLAG WILL REMAIN
SET UNTIL CLEARED WITH CLSK.

DISABLE CLOCK INTERRUPT (CLED)

OCTAL CODE: 6132
OPERATION: DISABLES THE CLOCK FLAG FROM CAUSING
AN INTERRUPT REQUEST. THE FLAG IS NOT AFFECTED.

9'.2 OK8-EP7DOKB8ES CLOCK
OPERATION:

THE PROGRAM EXERCISES AND TESTS THE FOLLOWING LOT'S FOR CORRECT
OPERATION AND FUNCTION:

CLEAR THE CLOCK ENABLE REGISTER PER AC (CLZE)

OCTAL CODE: 6130
OPERATION: CLEARS THE BITS IN THE CLOCK ENABLE
REGISTER CORRESPONDING TO THOSE BITS
SET IN THE AC. THE AC IS NOT AFFECTED.

SKIP ON A CLOCK INTERRUPT (CLSK)

OCTAL CODE: 6131
OPERATION: SENSES FOR INTERRUPT CONDITIONS. IF THE
CONDITIONS ARE PRESENT, THE NEXT SEQUENTIAL
INSTRUCTION IS SKIPPED. THE CONDITIONS
ARE AS FOLLOWS:
A: ENABLE EVENT INTERRUPT 1 AND INPUT 4
B: ENABLE EVENT INTERRUPT 2 AND INPUT 2
C: ENABLE EVENT INTERRUPT 3 AND INPUT 1
D: ENABLE OVERFLOW INTERRUPT AND OVERFLOW

AC TO CLOCK ENABLE REGISTER (CLOE)
CYCLE CODE 6132
OPERATION

CAUSES THE CONTENTS OF THE AC TO BE
LOADED INTO THE CLOCK ENABLE
REGISTER CORRESPONDING TO THOSE BITS
SET IN THE AC. THE AC IS NOT AFFECTED.
CLOCK ENABLE REGISTER FUNCTIONS ARE AS
FOLLOWS:

AC BIT

0
1 4 2

FUNCTION

ENABLE CLOCK OVERFLOW
MODE CONTROL

00 COUNTER RUNS AT SELECTED RATE,
OVERFLOW OCCURS EVERY 4096 COUNTS,
OVERFLOW REMAINS SET UNTIL CLEARED BY
(CLSA) IOT 6135.

01 COUNTER RUNS AT SELECTED RATE,
OVERFLOW CAUSES THE CLOCK BUFFER
REGISTER TO BE TRANSFERED TO THE
CLOCK COUNTER REGISTER WHICH WILL
CONTINUE TO RUN AFTER TRANSFER,
OVERFLOW WILL REMAIN SET UNTIL
CLEARED BY (CLSA) IOT 6135.

10 COUNTER RUNS AT SELECTED RATE,
AN EXTERNAL SCHMITT TRIGGER SIGNAL,
IF ENABLED, CAUSES THE CLOCK COUNTER
REGISTER TO BE TRANSFERED TO THE CLOCK
BUFFER REGISTER AND THE CLOCK COUNTER
CONTINUES TO RUN.

11 COUNTER RUNS AT SELECTED RATE,
AN EXTERNAL SCHMITT TRIGGER SIGNAL,
IF ENABLED, CAUSES THE CLOCK COUNTER
REGISTER TO BE TRANSFERED TO THE
CLOCK BUFFER REGISTER AND THE CLOCK
COUNTER WILL CONTINUE TO RUN FROM 0.

3,4 85

COUNT RATE

000	STOP
001	EXTERNAL CLOCK SOURCE
010	100 CPS
011	1000 CPS
100	10000 CPS
101	100000 CPS
110	1000000 CPS
111	STOP

WHEN SET TO A 1, OVERFLOW CAUSES
AN EXTERNAL PULSE,

WHEN SET TO A 1, THE CLOCK COUNTER
IS INHIBITED FROM COUNTING.

8

WHEN SET TO A 1, ENABLES EXTERNAL
SCHMITT TRIGGER SIGNALS AND THE OVERFLOW
FLOP TO CAUSE AN INTERRUPT REQUEST IF
THEY ARE ENABLED.

9,10 & 11 ENABLE SCHMITT TRIGGER EVENTS

100 INPUT 4
010 INPUT 2
001 INPUT 1

AC TO CLOCK BUFFER REGISTER (CLAB)
OCTAL CODE: 6133
OPERATION: CAUSES THE CONTENTS OF THE AC TO BE
TRANSFERRED INTO THE CLOCK BUFFER REGISTER;
THE CONTENTS OF BUFFER REGISTER IS THEN
TRANSFERRED TO THE CLOCK COUNTER
REGISTER, THE AC IS NOT AFFECTED.

CLOCK ENABLE REGISTER TO AC (CLEN)
OCTAL CODE: 6134
OPERATION: CAUSES THE CONTENTS OF THE CLOCK ENABLE
REGISTER TO BE TRANSFERRED TO THE AC;
THE ENABLE REGISTER IS NOT AFFECTED.

CLOCK STATUS TO AC (CLSA)
OCTAL CODE: 6135
OPERATION: CAUSES THE CONTENTS OF THE CLOCK STATUS
REGISTER TO BE TRANSFERRED INTO THE AC;
THE STATUS BITS ARE THEN CLEARED
CORRESPONDING TO THOSE BITS THAT WERE
SET IN THE AC. THE STATUS REGISTER
FUNCTIONS ARE AS FOLLOWS.

AC BIT STATUS CONDITION
0 -----
1=8 -----
9 INPUT 4
10 INPUT 2
11 INPUT 1

OVERFLOW

NOT USED

INPUT 4

INPUT 2

INPUT 1

CLOCK BUFFER REGISTER TO AC (CLBA)
OCTAL CODE: 6136
OPERATION: CAUSES THE CONTENTS OF THE CLOCK
BUFFER REGISTER TO BE TRANSFERRED
INTO THE AC. THE BUFFER REGISTER
IS NOT AFFECTED.

CLOCK COUNTER REGISTER TO AC (CLCA)
OCTAL CODE: 6137

OPERATION:
CAUSES THE CONTENTS OF THE CLOCK
COUNTER TO BE TRANSFERED INTO THE
CLOCK BUFFER REGISTER. THE BUFFER
REGISTER IS THEN TRANSFERED INTO
THE AC. THE COUNTER REGISTER
IS NOT AFFECTED.

LISTING

10.

/ DK8E CLOCKS DIAGNOSTIC
 / COPYRIGHT 1971, DIGITAL EQUIP. CORP., MAYNARD, MASS.
 / THE STARTING ADDRESS 0200 OCTAL.
 / PLEASE READ DOCUMENT FOR FURTHER INFORMATION.
 /*
 *0000
 /
 0000 0000 0000 0000 0000 0000 0000 0000
 0001 5001 0002 0003 0004 0005 0006 0007
 0002 0002 0003 0003 0004 0005 0006 0007
 0003 0003 0003 0003 0004 0005 0006 0007
 0004 0004 0004 0004 0005 0006 0007 0007
 0005 0005 0005 0005 0006 0007 K0207,
 0006 0006 0006 0006 0007 K0207,
 0007 0007 0007 0007 0008 0009 0009 0009
 0010 0000 0000 0000 0000 0000 0000 0000
 0011 0000 0000 0000 0000 0000 0000 0000
 0012 7700 7700 7700 7700 7700 7700 7700
 0013 0100 0100 0100 0100 0100 0100 0100
 0014 4000 4000 4000 4000 4000 4000 4000
 0015 0200 0200 0200 0200 0200 0200 0200
 0016 2525 2525 2525 2525 2525 2525 2525
 0017 5252 5252 5252 5252 5252 5252 5252
 0018 0000 0000 0000 0000 0000 0000 0000
 0019 0000 0000 0000 0000 0000 0000 0000
 0020 5102 X10TA, IOT A
 0021 5107 X10TB, IOT B
 0022 5114 X10TC, IOT C
 0023 5121 X10TD, IOT D
 0024 5127 X10TE, IOT E
 0025 5134 X10TF, IOT F
 0026 5142 X10FJ, IOT F1
 0027 5146 X10TG, IOT G
 0028 5154 X10TH, IOT H
 0029 5163 X10TI, IOT I
 0030 5200 X10TJ, IOT J
 0031 5163 X10TK, IOT K
 0032 5200 X10TS1, IOT S1
 0033 5207 X10TS2, IOT S2
 0034 5350 X10TS3, IOT S3
 0035 5360 X10TS4, IOT S4
 0036 5370 X10TS5, IOT S5
 0037 5400 X10TS6, IOT S6
 0038 5400 X10TS7, IOT S7
 0039 5400 X10TS8, IOT S8
 0040 0000 REGA,
 0041 0000 REGB,
 0042 0000 REGC,
 0043 0000 REGD,
 0044 0000 REGE,
 0045 0000 REGF,
 0046 5642 SKPWAT,
 0047 5295 XPIGO1,
 0050 5270 XPIGO2,
 0051 5323 XPIGO3,
 0052 5336 XPIGO4,
 0053 5234 XPIGO5,

0054	5310	X1S2,	1S2LOP
0055	5224	RANDY,	RANDOM
0056	5216	XSNURV,	SNDRV
0057	5302	XSYNC,	SYNC
0060	5065	XCLREG,	CLRREG
0061	5215	OVER2,	BGNEAC
0062	0217	OVER2A,	BGNEAC +2
0063	0570	XDKBEP,	TST30
0064	3561	XMITT,	TST202
0065	3556	XMITT1,	TST202 -3
0066	5660	XLAS,	SWLAS
0067	5746	XGTAD,	GTAD
0070	0000	SEND,	0000
0071	0000	RECEV,	0000
0072	5000	NERROR,	NERRO
0073	0000	LOOP,	0000
0074	5413	JMP12,	JMP 1 2
0075	0000	XCLOCK,	CLOCK
0076	0000	KRECC,	0000
0077	0000	LOOP,	0000
0100	5402	JMP12,	ERROR
0101	5441	XCRLF,	CRLF
0102	5563	XREG,	PREC
0103	5491	XSORT,	SORT
0104	5420	XOCTEL,	OCTEL
0105	5542	XMESS,	MESS
0106	5604	XPRINT,	PRINT
0107	5856	XTYPE,	TYPE
0110	5946	XBELL,	BELL
0111	7730	KPRMTI,	7730
0112	7400	K7400,	7400
0113	0000	KT1CPS,	0000
0114	6007	K6007,	6007
0115	0006	K0006,	0006
0116	0400	K0400,	0400
0117	6000	K6000,	6000
0120	3000	K3000,	3000
0121	5000	K5000,	5000
0122	7770	K7770,	7770
0123	0260	K0260,	0260
0124	4100	K4100,	4100
0125	3740	K3740,	3740
0126	0240	K0240,	0240
0127	0017	K0017,	0017
0128	7774	K7774,	7774
0131	7793	K7773,	7773
0132	7792	K7772,	7772
0133	0077	K0077,	0077
0134	0215	K0215,	0215
0135	0212	K0212,	0212
0136	0397	K0377,	0377
0137	0040	K0040,	0040
0140	0020	K0020,	0020
0141	7000	K7000,	7000
0142	0010	K0010,	0010

2143 2000 K2000 2000
 2144 1000 K1000 1000
 2145 2300 K0300 0300
 2146 0500 K0500 0500
 2147 0600 K0600 0600
 2148 0700 K0700 0700
 2149 2725 KTA1 2725
 2150 2650 KTA1, 2650
 2151 7425 KTB1, 7425
 2152 7350 KTB1, 7350
 2153 7753 KTC1, 7753
 2154 0225 KTC2, 0225
 2155 0150 KTD1, 0150
 2156 1450 KTD, 1450
 2157 1425 KTD1, 1425
 2158 6575 KTE1, 6525
 2159 6525 XSET0, 6525
 2160 5600 XOPR, SET0
 2161 5450 XOPR!, POPR
 2162 0070 PATCH, 0070
 2163 5600 XGETM, PASS
 2164 5600 XPASS, 5600
 2165 5450 XCRS1, 5450
 2166 0070 XCRS2, 0070
 2167 5771 XCRS3, 5771
 2168 5740 XCRS4, 5740
 2169 1775 XCRS5, 1775
 2170 2200 T122B, 2200
 2171 2200 T122A, 2200
 2172 2200 T127A, 2200
 2173 2603 T150A, 2603
 2174 2565 T150B, 2565
 2175 4003 T215A, 4003
 2176 4003 T215B, 4003
 2177 4003 T215C, 4003
 2178 4003 T215D, 4003
 2179 4003 T215E, 4003
 2180 4003 T215F, 4003
 2181 4003 T215G, 4003
 2182 4003 T215H, 4003
 2183 4003 T215I, 4003
 2184 4003 T215J, 4003
 2185 4003 T215K, 4003
 2186 4003 T215L, 4003
 2187 4003 T215M, 4003
 2188 4003 T215N, 4003
 2189 4003 T215O, 4003
 2190 4003 T215P, 4003
 2191 4003 T215Q, 4003
 2192 4003 T215R, 4003
 2193 4003 T215S, 4003
 2194 4003 T215T, 4003
 2195 4003 T215U, 4003
 2196 4003 T215V, 4003
 2197 4003 T215W, 4003
 2198 4003 T215X, 4003
 2199 4003 T215Y, 4003
 2200 4003 T215Z, 4003

0200 7300 BEGIN, CLA CLL
 0201 6007 6007 /CLEAR THE AC AND LINK
 0202 4501 JMS I XCRLF /CAF OR CLEAR THE WORLD
 0203 4506 JMS I XPRINT /CRLF
 0204 6000 DMES /PRINT DK8E CLOCKS DIAGNOSTIC
 0205 4501 DMES /MESSAGE POINTER
 0206 4460 JMS I XCRLF /CLEAR ALL MY REGISTERS
 0207 4564 JMS I XSET0 /SET UP FOR PI RETURN
 0208 4466 JMS I XLAS /GET HIS SWITCHES
 0209 4466 JMS I XMITT1 /TEST SCHMITT
 0210 4466 JMS I XDKEP /TEST DK8EP CLOCK
 0211 5465 JMS I XCLOCKS /TEST DK8EA OR DK8EC
 0212 5463 JMS I XOPR /SORT AND PRINT FREQ, SELECTED
 0213 4474 JMS I XOPR /GET TIME LENGTH
 0214 4565 BGNEAC, JMS I XGETM /SET LOOP COUNTER
 0215 4567 JMS I XCLREG /CLEAR ALL REGISTERS
 0216 3057 DCA REGA
 0217 4460 JMS I XIDTA /DCA REGA
 0218 3040

/DOES NOT CLEI CHANGE AC ?
 /CHECK ALL COMBINATIONS

0221 1040 TST0, TAD REGA /GET AC NUMBER
 0222 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
 0223 1070 TAD SEND
 0224 4420 JMS I XIDTA /107 6131, CLEI

•ALC10 V142 22 OCT 73 9155 PAGE 103

82225 3071 DCA RECEV
82226 1071 TAD RECEV
82227 4456 JMS ! XSDR
82230 4492 JMS ! NERROR
82231 4473 JMS ! ERROR
82232 3000 3000
82233 0221 TST0
82234 3040 DCA REGA

/ DOES NOT CLED CHANGE AC ?
/ CHECK ALL COMBINATIONS

8235 1040 TAD REGA
8236 3070 DCA SEND
8237 1070 TAD SEND
8240 4421 JMS ! XIOT8
8241 3071 DCA RECEV
8242 1071 TAD RECEV
8243 4456 JMS ! XSDR
8244 4492 JMS ! NERROR
8245 4473 JMS ! ERROR
8246 3001 3001
8247 0235 TST1
8250 3040 DCA REGA

/ GET AC NUMBER
/SAVE OUTPUT FOR ERROR PRINTER

8251 1040 TAD REGA
8252 3070 DCA SEND
8253 1070 TAD SEND
8254 4422 JMS ! XIOT8
8255 7000 NOP
8256 3071 DCA RECEV
8257 1071 TAD RECEV
8260 4456 JMS ! XSDR
8261 4492 JMS ! NERROR
8262 4473 JMS ! ERROR
8263 3002 3002
8264 0235 TST2

/ GET AC NUMBER
/SAVE OUTPUT FOR ERROR PRINTER

/ DOES NOT CLSK CHANGE AC ?
/ CHECK ALL COMBINATIONS

8265 6007 TST3, 6007 /CAF OR CLEAR THE WORLD
8266 447 JMS ! XSDR
8267 4472 JMS ! NERROR
8268 4473 JMS ! ERROR
8269 1003 1003
8270 4475 TST3
8271 1003 TST2

/ WAIT JUST IN CASE !
/SAVE INPUT FOR ERROR PRINTER

/ TEST FOR NO INTERRUPT RQST.

8273 1113 TST4, 1113 /DO TO T1 INC IF EXPECTED
8274 3045 DCA REGF
8275 4422 JMS ! XIOT8

/ GET AC NUMBER
/SAVE OUTPUT FOR ERROR PRINTER

/ SET UP TIMER 514 AC → 01000000
/ SET UP TIMER 514 AC → 01000000

8273 1113
8274 3045
8275 4422

Alcohol very

10 V142 22 OCT 73 9155 PAGE 1#4

0276 7000 NOP
0277 4422 JMS I XIOTC /IOT 6133! CLSK
0278 4446 JHS I SKPWAT /GO WAIT FOR FLAG —
0300 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
0301 4473 JMS I ERROR /ERROR! CLSK OR FLAG FAILED
0302 4474 JMS I 0404 /TST4 ERROR MESSAGE
0303 0404 /SCOPE LOOP
0304 0273 TST4

/DOES CLSK CLEAR THE FLAG ?

TST5, TAD KTA4CPS /SET UP TIMER
DCA RESF /IOT 6133, CLSK
JMS I XIOTC /IOT 6133, CLSK
NOP
JMS I XIOTC /IOT 6133, CLSK
/GO WAIT FOR FLAG
JMS I SKPWAT /GOT THE FLAG
SKP /CD BACK TO TEST 4
JMP I "10 /CD BACK TO TEST 4
JMS I XIOTC /IOT 6133, CLSK
0315 4422 JMS I NERROR /CHECK NON-ERROR HANDLER
0316 4472 JMS I ERROR /ERROR! CLSK CLEAR THE FLAG FAILED
0317 4473 JMS I 0005 /TSTS ERROR MESSAGE
0320 0005 /SCOPE LOOP
0321 0305 TSY5

/DOES CLEI ENABLE CLOCK INTERRUPT ?

TST6, JMS I XIOTI /IOT 6134! CLEI!
JMS I XPIG02 /GO TO PI! PI EXPECTED
0322 4420 JMS I NERROR /CHECK NON-ERROR HANDLER
0323 4450 JMS I ERROR /ERROR! DID CLEI ENABLE CLOCK INTERRUPT ?
0324 4472 JMS I 1406 /TST6 ERROR MESSAGE
0325 4473 TST6 /SCOPE LOOP,

/DOES CLEI DISABLE CLOCK INTERRUPT ?

TST7, JMS I XIOTI /IOT 6134! CLEI!
JMS I XIOTB /IOT 6132! CLED
JMS I XPIG01 /GO TO PI! NO PI EXPECTED
0326 1406 JMS I NERROR /CHECK NON-ERROR HANDLER
0327 0322 JMS I ERROR /ERROR! DID CLEI DISABLE CLOCK INTERRUPT ?
TST7 /TST7 ERROR MESSAGE
/SCOPE LOOP,

/DOES CAF DISABLE CLOCK INTERRUPT ?

TST10-, JMS I XIOTI /IOT 6131! CLEI!
6007 JMS I XPIG01 /CAF OR CLEAR THE WORLD
0331 4421 JMS I NERROR /GO TO PI! NO PI EXPECTED
0332 4447 JMS I ERROR /CHECK NON-ERROR HANDLER
0333 4472 JMS I ERROR /ERROR! DID CAF DISABLE CLOCK INTERRUPT ?
0334 4473 TST10 /TST10 ERROR MESSAGE
0335 1007 /SCOPE LOOP,
0336 0330 TST10

/DOES CLEI ENABLE CLOCK INTERRUPT ?

PAL10 V142 22 OCT 73 9155 PAGE 105

0346 4420 TST11, JMS | X10T_A /IOT 6131, CLEI
0347 4447 JMS | XPIG01 /GO TO PI, PI EXPECTED
0350 5354 JMP T11A
0351 4420 JMS | X10T_A /IOT 6131, CLEI
0352 4450 JMS | XPIG02 /GO TO PI, PI EXPECTED
0353 4472 JMS | NERROR /CHECK NON-ERROR HANDLER,
0354 4473 JMS | ERROR /ERROR! CLEI AND CLED PAST TGGLE
0355 1411 1411 /TST11, ERROR MESSAGE
0356 0346 TST11,

//DOES CLED DISABLE CLOCK INTERRUPT ?
0357 4420 TST12, JMS | X10T_B /IOT 6131, CLEI
0360 4421 JMS | X10T_B /IOT 6132, CLED
0361 4450 JMP T12A
0362 5366 JMS | XPIG02 /GO TO PI, NO PI EXPECTED
0363 4421 JMS | X10T_B /IOT 6132, CLED
0364 4447 JMS | XPIG01 /GO TO PI, NO PI EXPECTED
0365 4492 JMS | NERROR /CHECK NON-ERROR HANDLER,
0366 4493 T12A, JMS | ERROR /ERROR! CLEI AND CLED PAST TGGLE
0367 1012 1012 /TST12, ERROR MESSAGE
0370 0357 TST12

//TEST DECODER FOR 6135, NOT CLEI
0371 4481 TST13, JMS | X10T_B /IOT 6132, CLED
0372 4481 JMS | X10T_I /IOT 6135, NOT AN IOT 6131
0373 4447 JMS | XPIG01 /GO TO PI, NO PI EXPECTED
0374 4472 JMS | NERROR /CHECK NON-ERROR HANDLER,
0375 4493 JMS | ERROR /ERROR! DID DECODER WORK
0376 1013 1013 /TST13, ERROR MESSAGE
0377 0371 TST13

//TEST DECODER FOR A 6136, NOT CLED
0400 4420 TST14, JMS | X10T_J /IOT 6131, CLEI
0401 4482 JMS | XPIG02 /IOT 6136, NOT AN IOT 6132,
0402 4480 NOP /GO TO PI, PI EXPECTED
0403 4472 JMS | NERROR /CHECK NON-ERROR HANDLER,
0404 4473 JMS | ERROR /ERROR! DID DECODER WORK
0405 1414 1414 /TST14, ERROR MESSAGE
0406 0430 TST14

//TEST DECODER FOR 6137, NOT CLSK
0407 1113 TAD KT1CPS /SET UP TIMER
0410 3045 OCA REGF /IOT 6132, CLED
0411 4422 JMS | X10T_C
0412 7000 NOP
0413 4433 JMS | X10T_K
0414 4446 JMS | SKPWAT /IOT 6137, NOT AN IOT 6133
0415 7410 SKP /GO WAIT FOR FLAG
0416 4492 JMS | NERROR /ERROR, SKIP OCCURRED
0417 4493 JMS | ERROR /CHECK NON-ERROR HANDLER,
0420 0015 0015 /ERROR! DID DECODER WORK
0015 /TST15, ERROR MESSAGE

10
8421 0407

22 OCT 73
TST15
9155
PAGE 106

/SCOPE LOOP.

/DOES CLSK ENABLE CLOCK INTERRUPT ?

TST16, JMS I XIOTC /10T 6133, CLSK
NOP /GO TO P1, NO PI EXPECTED
JMS I XPIG01 /CHECK NON-ERROR HANDLER.
JMS I NERROR /ERROR! DID CLSK CAUSE INTERRUPT
JMS I ERROR /TST16 ERROR MESSAGE
TST16 /SCOPE LOOP.

/DOES CLSK DISABLE CLOCK INTERRUPT ?

TST17, JMS I XIOTC /10T 6131, CLEI
NOP /10T 6133, CLSK
JMS I XPIG02 /GO TO P1, PI EXPECTED
JMS I NERROR /CHECK NON-ERROR HANDLER.
JMS I ERROR /ERROR! CLSK DISABLED CLOCK INTERRUPT
1417 /TST17 ERROR MESSAGE
TST17 /SCOPE LOOP.

/DOES CLEI CAUSE A SKIP ON FLAG ?

TST20, TAD KT1CPS /SET UP TIMER
DCA REGF /SET UP TIMER
JMS I XIOTC /10T 6131, CLEI
JMS I SKPWAT /GO WAIT FOR FLAG
SKP /ERROR, SKIP OCCURRED
JMS I NERROR /CHECK NON-ERROR HANDLER.
JMS I ERROR /ERROR! DID CLEI CAUSE A SKIP
0920 /TST20 ERROR MESSAGE
TST20 /SCOPE LOOP.

/DOES CLED CAUSE A SKIP ON FLAG ?

TST21, TAD KT1CPS /SET UP TIMER
DCA REGF /SET UP TIMER
JMS I XIOTC /10T 6132, CLED
JMS I SKPWAT /GO WAIT FOR FLAG
SKP /ERROR, SKIP OCCURRED
JMS I NERROR /CHECK NON-ERROR HANDLER.
JMS I ERROR /ERROR! DID CLED CAUSE A SKIP ON FLAG
0921 /TST21 ERROR MESSAGE
TST21 /SCOPE LOOP.

/DOES INT. ROST STAY DOWN ?

TST22, JMS I XSYNC /SYNC WITH CLOCK
JMS I XIOTC /10T 6131, CLEI
JMS I XPIG01 /GO TO P1, PI EXPECTED
JMP T22A /ERROR, PI FAILED
ISZ REGB /WAIT 15.5 MS
JMP I=1

8462

8463

8464

8465

8466

8467

8468

8469

8470

PAL10 V142 22 OCT 73 9155 PAGE 187

2471 4452 JMS ! XPIO04 /GO TO PI, PI EXPECTED
2472 4492 JMS ! NERROR /CHECK NON-ERROR HANDLER
2473 4473 T22A, JMS ! ERROR /ERROR DID RST, LAST?
2474 1422 1422 /TST21 ERROR MESSAGE
2475 0463 TST22 /SCOPE LOOP

/DOES CLSK CLEAR RST, LINE ?

2476 4420 TST23, JMS ! XIOTÄ /IOT 6131, CLEI
0477 4457 JMS ! XSYNC /SYNC WITH CLOCK FLAG
2500 4451 JMS ! XPIO03 /GO TO PI, NO PI EXPECTED
2501 4472 JMS ! NERROR /CHECK NON-ERROR HANDLER
2502 4473 JMS ! ERROR /ERROR DID CLSK CLEAR RST, FLAG
2503 1023 1023 /TST23 ERROR MESSAGE
2504 0476 TST23 /SCOPE LOOP

/SYNC WITH CLOCK AND
/CHECK FOR FAST OUTPUT

2505 4467 TST24, JMS ! XGTAÖ /GET TIME CONSTANTS
3506 0000 0000 /MODIFIED BY TEST
2507 1706 TAD 1 1-1
3043 DCA REGD
0511 4420 JMS ! XIOTÄ /IOT 6131, CLEI
0512 4457 JMS ! XSYNC /SYNC WITH CLOCK
0513 4447 JMS ! XPIO01 /GO TO PI, NO PI EXPECTED
0514 4472 JMS ! NERROR /CHECK NON-ERROR HANDLER,
0515 4473 JMS ! ERROR /ERROR! CLOCK FREQUENCY FAST.
0516 2024 2024 /TST24 ERROR MESSAGE,
0517 0505 TST24 /SCOPE LOOP,

/SYNC WITH CLOCK AND
/CHECK FOR SLOW OUTPUT

2520 1115 T5T25, TAD K0006 /SETUP FOR SLOW CLOCK
2521 4467 JMS ! XGTAÖ /GET TIME CONSTANTS
2522 0000 0000 /MODIFIED BY TEST
2523 1722 TAD 1 1-1
2524 3043 DCA REGD
2525 4420 JMS ! XIOTÄ /IOT 6131, CLEI
2526 4437 JMS ! XSYNC /SYNC WITH CLOCK
2527 4438 JMS ! XPIO02 /GO TO PI, PI EXPECTED
2530 4472 JMS ! NERROR /CHECK NON-ERROR HANDLER,
2531 4493 JMS ! ERROR /ERROR! CLOCK FREQUENCY SLOW.
2532 4425 4425 /TST25 ERROR MESSAGE,
2533 0520 TST25 /SCOPE LOOP,

/CHECK FOR FAST CLOCK AND
/BAD CLOCK FLAG WITH CLSK,

2534 4467 TST26, JMS ! XGTAÖ /GET TIME CONSTANTS
2535 0000 0000 /MODIFIED BY TEST
2536 1735 TAD 1 1-1
2537 3043 DCA REGD
2540 4457 JMS ! XSYNC /SYNC WITH CLOCK

10 V142 22 OCT 73 9155 PAGE 1#8

0541 4454 JMS ! X1SZ /WAIT
0542 4422 JMS ! XIOTC /IOT 6133, CLSK
0543 4472 JMS ! NERROR /CHECK NON-ERROR HANDLER
0544 4473 JMS ! ERROR /ERROR! CLOCK FAILED
0545 2026 2026 /TST26 ERROR MESSAGE
0546 0534 TST26 /SCOPE LOOP

/CHECK FOR SLOW CLOCK AND
/BAD CLOCK FLAG WITH CLSK

/
TST27: TAD K00006 /SET UP FOR SLOW CLOCK
JMS ! XGTAÖ /GET TIME CONSTANTS
0000 /MODIFIED BY TEST
0551 1751 TAD ! !
DCA REGD /SYNC WITH CLOCK
JMS ! XSYNC /WAIT
JMS ! X1SZ /IOT 6133, CLSK
0552 4457 JMS ! XIOTC /ERROR! SKIP OCCURRED
0553 3043 SKP /CHECK NON-ERROR HANDLER
0554 4454 JMS ! NERROR /ERROR! CLSK OR CLOCK FLAG FAILED
0555 4454 JMS ! ERROR /TST27 ERROR MESSAGE
0556 4422 2427 /SCOPE LOOP
0557 7410 TST27 /LOOP ON TEST
0558 4492 0561 4473 0562 2427 /TYPE PASS COMPLETE
0563 0547 0564 2077 0565 5462 0566 4598 0567 5461 /RESET COUNTER AND CONTINUE TESTING
JMP ! OVER2A
JMS ! XPASS
JMP ! OVER2

/DOES IOT CLZE CHANGE AC?
/CHECK ALL COMBINATIONS.
/

TST30: TAD REGA /GET AC NUMBER
JMS ! XIOTÖ /IOT 6133! CLZE
DCA RECEV /SAVE INPUT FOR ERROR PRINTER
TAD RECEV
JMS ! XSNDRV /CHECK SEND AND RECEV REGISTERS
0570 1040 0571 4423 0572 3071 0573 1071 0574 4456 0575 4492 0576 4473 0577 3030 0600 TAD SEND /CHECK NON-ERROR HANDLER
JMS ! NERROR /ERROR! CLZE CHANGED AC
JMS ! ERROR /TST30 ERROR MESSAGE
TAD SEND /SCOPE LOOP

/DOES IOT CLSK CHANGE AC?
/CHECK ALL COMBINATIONS.
/

TST31: TAD REGA /GET AC NUMBER
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
TAD SEND
JMS ! XIOTE NOP
0601 1040 0602 3070 0603 1070 0604 4424 0605 7000 0606 3071 0607 1071 0610 4456 0611 4492 0612 4473 TAD RECEV /SAVE INPUT FOR ERROR PRINTER
JMS ! XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS ! NERROR /CHECK NON-ERROR HANDLER
JMS ! ERROR /ERROR! CLSK CHANGED AC'

PAL10 V142 22-OCT-73 9155 PAGE 1 of 9

0613 3031 3031 /TST31 ERROR MESSAGE
0614 30601 30601 /SCOPE LOOP

/DOES IOT CLOSE CHANGE AC?
/CHECK ALL COMBINATIONS

0615 1040 TST32, TAD REGA /GET AC NUMBER
0616 4425 JMS 1 X10TF /IOT 6132, CLOE
0617 3091 DCA RECEV /SAVE INPUT FOR ERROR PRINTER
0620 1091 TAD RECEV
0621 4456 JMS 1 XSNDRV /CHECK SEND AND RECEV REGISTERS
0622 4492 JMS 1 NERROR /CHECK NON-ERROR HANDLER
0623 4473 JMS 1 ERROR /ERRORICLDE CHANGED AC
0624 3032 3032 /TST32 ERROR MESSAGE
0625 0615 /SCOPE LOOP

/DOES IOT CLAB CHANGE AC?
/CHECK ALL COMBINATIONS

0626 1040 TST33, TAD REGA /GET AC NUMBER
0627 4427 JMS 1 X10TG /IOT 6133, CLAB
0630 3091 DCA RECEV /SAVE INPUT FOR ERROR PRINTER
0631 1091 TAD RECEV
0632 4456 JMS 1 XSNDRV /CHECK SEND AND RECEV REGISTERS
0633 4492 JMS 1 NERROR /CHECK NON-ERROR HANDLER
0634 4473 JMS 1 ERROR /ERRORICLAB CHANGED AC
0635 3033 3033 /TST33 ERROR MESSAGE
0636 0626 /SCOPE LOOP

/DOES CAF CLEAR BUFFER REGISTER?
/CHECK FOR JAM TO AC, CLBA,

0637 6007 TST34, 6007 /CAF OR CLEAR THE WORLD
0640 7340 CLA CLL CMĀ /AC TO 7777
0641 4432 JMS 1 X10TJ /IOT 6134, CLBA
0642 7650 SNA CLA /WAS BUFFER ALL 0/5?
0643 4492 JMS 1 NERROR /CHECK NON-ERROR HANDLER
0644 4473 JMS 1 ERROR /ERRORICAF OR CLBA FAILED.
0645 3434 3434 /TST34 ERROR MESSAGE
0646 0637 TST34 /SCOPE LOOP

/DOES CAF CLEAR ENABLE REGISTER?
/CHECK FOR JAM TO AC, CLEN,

0647 6007 TST35, 6007 /CAF OR CLEAR THE WORLD
0650 7340 CLA CLL CMĀ /AC TO 7777
0651 4430 JMS 1 X10TH /IOT 6134, CLEN
0652 7650 SNA CLA /WAS ENABLE REGISTER ALL 0/5?
0653 4492 JMS 1 NERROR /CHECK NON-ERROR HANDLER
0654 4473 JMS 1 ERROR /ERRORICAL OR CLEN FAILED.
0655 4435 4435 /TST35 ERROR MESSAGE
0656 0647 TST35 /SCOPE LOOP

```

//DOES CAF CLEAR STATUS REGISTER ?
//CHECK JAM TO AC CLSA
0657 6007      6007      /CAF OR THE CLEAR THE WORLD
0660 7340      CLA CLL CMĀ /AC TO 7777
0661 4431      JMS I X10TJ /10T 6135! CLSA
0662 7650      SNA CLA   /WAS STATUS REGISTER ALL 0/S ?
0663 4492      JMS I NERROR /CHECK NON-ERROR HANDLER
0664 4493      JMS I ERROR  /CAF OR CLSA FAILED
0665 5036      5036     /TST36 ERROR MESSAGE
0666 0657      TST36     /SCOPE LOOP

//DOES AC LOAD BUFFER REGISTER ?
//CHECK ALL 0/S TRANSFER
//CHECK JAM TO AC, CLBA
0667 4427      JMS I X10TG /10T 6133! CLAB
0670 7340      CLA CLL CMĀ /AC TO 7777
0671 4432      JMS I X10TJ /10T 6136! CLBA
0672 7650      SNA CLA   /WAS BUFFER ALL 0/S?
0673 4492      JMS I NERROR /CHECK NON-ERROR HANDLER
0674 4493      JMS I ERROR  /ERROR! CLAB OR CLBA FAILED
0675 3437      3437     /TST37 ERROR MESSAGE
0676 0667      TST37     /SCOPE LOOP

//DOES AC LOAD BUFFER REGISTER ?
//CHECK ALL 1/S TRANSFER
//CHECK JAM TO AC , CLBA
0677 7340      CLA CLL CMĀ /AC TO 7777
0700 4427      JMS I X10TG /10T 6133! CLAB
0701 7300      CLA CLL   /CLEAR THE AC AND LINK
0702 4432      JMS I X10TJ /10T 6136! CLBA
0703 7040      CMA      /COMPLEMENT THE AC
0704 7650      SNA CLA   /WAS BUFFER ALL 1/S?
0705 4492      JMS I NERROR /CHECK NON-ERROR HANDLER
0706 4493      JMS I ERROR  /ERROR! CLAB OR CLBA FAILED
0707 3440      3440     /TST40 ERROR MESSAGE
0710 0677      TST40     /SCOPE LOOP

//DOES BUFFER SURVIVE PATTERN 2525 ?
//TST41
0711 1674      TAD X2525  /GET AC NUMBER
0712 4427      JMS I X10TG /10T 6133! CLAB
0713 7040      CMA      /COMPLEMENT AC
0714 4432      JMS I X10TJ /10T 6136! CLBA
0715 4456      JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
0716 4492      JMS I NERROR /CHECK NON-ERROR HANDLER
0717 4493      JMS I ERROR  /ERROR! BUFFER OR AC FAILED
0720 3441      3441     /TST41 ERROR MESSAGE
0721 0711      TST41     /SCOPE LOOP

//DOES BUFFER SURVIVE PATTERN 5252 ?

```

```

/ TST42, TAD K5252 /GET AC NUMBER
0722 1017 JMS 1 X10TG /IOT 6133! CLXB
0723 4427 CMA /COMPLEMENT AC
0724 7040 JMS 1 X10TJ /IOT 6136! CLBA
0725 4432 JMS 1 XSNDRV /CHECK SEND AND RECEV REGISTERS
0726 4456 JMS 1 NERROR /CHECK NON-ERROR HANDLER
0727 4472 JMS 1 ERROR /ERROR! BUFFER OR AC FAILED
0730 4473 3442 /TST42 ERROR MESSAGE
0731 3442 TST42 /SCOPE LOOP

/ DOES CAF REALLY CLEAR BUFFER ?
0733 7240 T5743, CLA CLL CMA /AC TO ALL 7777
0734 4427 JMS 1 X10TG /IOT 6133! CLAB
0735 6007 6007 /CAF OR CLEAR THE WORLD
0736 3090 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
0737 7340 CLA CLL CMA
0740 4432 JMS 1 X10TJ /IOT 6136! CLBA
0741 7650 SNA CLA /WAS BUFFER ALL 0'S ?
0742 4472 JMS 1 NERROR /CHECK NON-ERROR HANDLER
0743 4473 JMS 1 ERROR /ERROR! CAF OR BUFFER FAILED
0744 3443 TST43 /TST43 ERROR MESSAGE
0745 0753 3443 /SCOPE LOOP

/ DOES CAF REALLY CLEAR BUFFER ?
/ DO ALL COMBINATIONS
0746 1040 T5744, TAD REGA /GET AC NUMBER
0747 4427 JMS 1 X10TG /IOT 6133! CLAB
0750 6057 6007 /CAF OR CLEAR THE WORLD
0751 3090 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
0752 7340 CLA CLL CMA
0753 4432 JMS 1 X10TJ /IOT 6136! CLBA
0754 7650 SNA CLA /WAS BUFFER ALL 0'S ?
0755 4492 JMS 1 NERROR /CHECK NON-ERROR HANDLER
0756 4473 JMS 1 ERROR /ERROR! CAF OR BUFFER FAILED
0757 3444 TST44 /TST44 ERROR MESSAGE
0760 0746 3444 /SCOPE LOOP

/ CHECK AC TO BUFFER REGISTER AND
/ BUFFER REGISTER TO AC TRANSFERS,
/ CHECK ALL COMBINATIONS,
/ CHECK LOAD ON BUFFER REGISTER,
0761 7340 T5745, CLA CLL CMA /GET AC NUMBER
0762 3040 DCA REGA /IOT 6133! CLAB
0763 1041 T45B, TAD REGB /COMPLEMENT THE AC
0764 4427 JMS 1 X10TG /IOT 6136! CLBA
0765 7040 CMA /CHECK SEND RECEV REGISTERS
0766 4432 JMS 1 XSNDRV
0767 4456 SKP CLA
0770 7610 JMP T45A
0771 5375 ISZ REGB
0772 2041 /UPDATE AC NUMBER

```

10

PAGE 1#12

9155

22 OCT 73

9155

V142

0773 5363 JMP T45B /CHECK NON-ERROR HANDLER
0774 4472 JMS 1 NERROR /ERROR! AC OR BUFFER FAILED.
0775 4473 T45A, JMS 1 ERROR /TST45 ERROR MESSAGE
0776 3445 TST45 /SCOPE LOOP

/ DOES READING BUFFER CHANGE ITS CONTENTS ?

TST46, CLA CLL CMĀ /AC TO 7777
1001 3040 DCA REGA /GET AC NUMBER
1002 1016 TAD K2525 /10T 6133!, CLAB
1003 4427 JMS 1 XIOTG /COMPLEMENT AC
1004 7040 CHA JMS 1 XIOTJ /10T 6136!, CLBA
1005 4432 JMS 1 XSNDRV /CHECK SEND AND RECEV REGISTERS
1006 4456 SKP CLA
1007 7610 JMP T46A /UPDATE COUNTER
1010 5214 ISEZ REGB /DO 4096 TIMES
1011 2041 JMP T46B /CHECK NON-ERROR HANDLER
1012 5205 JMS 1 NERROR /ERROR! BUFFER FAILED
1013 4472 T46A, JMS 1 ERROR /TST46 ERROR MESSAGE
1014 4473 3446 /SCOPE LOOP
1015 3446 TST46

/ DOES READING BUFFER CHANGE ITS CONTENTS ?

TST47, CLA CLL CMĀ /AC TO 7777
1020 3040 DCA REGA /GET AC NUMBER
1021 1017 TAD K2525 /10T 6133!, CLAB
1022 4427 JMS 1 XIOTG /COMPLEMENT AC
1023 7040 CHA JMS 1 XIOTJ /10T 6136!, CLBA
1024 4432 JMS 1 XSNDRV /CHECK SEND AND RECEV REGISTERS
1025 4456 SKP CLA
1026 7610 JMP T47A /UPDATE COUNTER
1027 5235 ISEZ REGB /DO 4096 TIMES
1030 2041 JMP T47B /CHECK NON-ERROR HANDLER
1031 5224 JMS 1 NERROR /ERROR! BUFFER FAILED
1032 4472 T47A, JMS 1 ERROR /TST47 ERROR MESSAGE
1033 4473 3447 /SCOPELOOP
1034 5447 TST47

/ DOES BUFFER SURVIVE RANDOM PATTERNS ?

TST48, CLA CLL CMĀ /AC TO 7777
1037 3040 DCA REGA /GET RANDOM NUMBER
1040 4435 T50B, JMS 1 RANDY /10T 6133!, CLAB
1041 4427 JMS 1 XIOTG /COMPLEMENT AC
1042 7040 CHA JMS 1 XIOTJ /10T 6136!, CLBA
1043 4432 JMS 1 XSNDRV /CHECK SEND AND RECEV REGISTERS
1044 4456 SKP CLA
1045 7610 JMP T50A /UPDATE COUNTER
1046 5252 ISEZ REGB /DO 4096 TIMES
1047 2041 JMP T50B

/ DOES BUFFER SURVIVE RANDOM PATTERNS ?

T50B, CLA CLL CMĀ /AC TO 7777
1040 4435 JMS 1 RANDY /GET RANDOM NUMBER
1041 4427 JMS 1 XIOTG /10T 6133!, CLAB
1042 7040 CHA JMS 1 XIOTJ /COMPLEMENT AC
1043 4432 JMS 1 XSNDRV /10T 6136!, CLBA
1044 4456 SKP CLA
1045 7610 JMP T50A /UPDATE COUNTER
1046 5252 ISEZ REGB /DO 4096 TIMES
1047 2041 JMP T50B

PAL12 V142 22 OCT 73 9155 PAGE 1-13

1051 4472 T50A, JMS ! NERROR /CHECK NON-ERROR HANDLER
1052 4493 T50A, JMS ! ERROR /ERROR! BUFFER FAILED
1053 3450 TST50 /TST50 ERROR MESSAGE
1054 1036 /SCOPE LOOP

/DOES BUFFER SURVIVE FAST TOGGLE ?

TST51, TAD REGA /GET AC NUMBER
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
TAD REGA
JMS ! X107S1 /IOT'S 6133 AND 6136
DCA RECEV /SAVE INPUT FOR ERROR PRINTER
TAD RECEV
JMS ! XSDRY /CHECK SEND RECEV REGISTERS
JMS ! NERROR /CHECK NON-ERROR HANDLER
JMS ! ERROR /ERROR! BUFFER FAILED
3451 /TST51 ERROR MESSAGE
TST51 /SCOPE LOOP

/DOES AC SET ENABLE REGISTER?
/CHECK ALL 1'S TRANSFER,
/CHECK JAM TO AC, CLEN

TST52, CLA CLL CMĀ /AC TO 7777
JMS ! XIOTP /IOT 6132, CLOSE
CMĀ
JMS ! XIOTH /COMPLEMENT AC
CMĀ
JMS ! XIOTH /IOT 6134, CLEN
/COMPLEMENT AC
SNA CLA /WAS ENABLE REGISTER ALL 1'S ?
JMS ! NERROR /CHECK NON-ERROR HANDLER
JMS ! ERROR /ERROR! CLOSE OR CLEN FAILED
4452 /TST52 ERROR MESSAGE
TST52 /SCOPE LOOP

/DOES AC SET ENABLE REGISTER?
/CHECK ALL 0'S TRANSFER,
/CHECK FOR JAM TO AC , CLEN

TST53, CLA CLL CMĀ /AC TO 7777
JMS ! XIOTP /IOT 6132, CLOSE
CLA CLL /CLEAR THE AC AND LINK
JMS ! XIOTP1 /IOT 6132, CLOSE
JMS ! XIOTH /IOT 6134, CLEN
CMĀ /COMPLEMENT THE AC
SNA CLA /WAS ENABLE REGISTER ALL 1'S ?
JMS ! NERROR /CHECK NON-ERROR HANDLER
JMS ! ERROR /ERROR! CLOSE OR CLEN FAILED
4453 /TST53 ERROR MESSAGE
TST53 /SCOPE LOOP

/DOES CAF REALLY CLEAR ENABLE REGISTER?

TST54, CLA CLL CMĀ /AC TO 7777
JMS ! XIOTP /IOT 6132, CLOSE

1117 6007 DCA SEND /CAF OR CLEAR THE WORLD
 1120 3070 CLA CLL CMĀ /SAVE OUTPUT FOR ERROR PRINTER
 1121 7340 JMS I XIOTH /AC TO 7777
 1122 4430 SNA CLA /IOT 6134! CLEN
 1123 7650 JMS I NERROR /WAS REGISTER ALL 0'S ?
 1124 4472 JMS I ERROR /CHECK NON-ERROR HANDLER
 1125 4473 4454 /ERRORICAF,CLOE,OR CLEN FAILED
 1126 4454 TST54 /TST54 ERROR MESSAGE
 1127 1115 /SCOPE LOOP

/ DOES CAF REALLY CLEAR ENABLE REGISTER ?
 / DO ALL COMBINATIONS

1130 1040 TAD REGA /GET AC NUMBER
 1131 4426 JMS I XIOTF1 /IOT 6132! CLOE
 1132 6007 CLA CLL CMĀ /CAF OR CLEAR THE WORLD
 1133 7340 JMS I XIOTH /AC TO 7777
 1134 4430 SNA CLA /IOT 6134! CLEN
 1135 7650 JMS I NERROR /WAS ENABLE REGISTER ALL 0'S ?
 1136 4472 JMS I ERROR /CHECK NON-ERROR HANDLER
 1137 4473 4455 /ERRORI ENABLE REGISTER FAILED
 1140 4455 TST55 /TST55 ERROR MESSAGE
 1141 1130 /SCOPE LOOP

/ DOES ENABLE REGISTER SURVIVE PATTERN 2525 ?

1142 1016 TAD K2525 /GET AC NUMBER
 1143 4425 JMS I XIOTF /IOT 6132! CLOE
 1144 7040 CMA /COMPLEMENT AC
 1145 4430 JMS I XIOTH /IOT 6134! CLEN
 1146 4456 JMS I XSNDAY /CHECK SEND AND RECEV REGISTERS
 1147 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
 1150 4473 JMS I ERROR /ERRORI EBABLE REGISTER FAILED
 1151 4456 TST56 /TST56 ERROR MESSAGE
 1152 1142 /SCOPE LOOP

/ DOES ENABLE REGISTER SURVIVE PATTERN 5252 ?

1153 1017 TAD K5252 /GET AC NUMBER
 1154 4425 JMS I XIOTF /IOT 6132! CLOE
 1155 7040 CMA /COMPLEMENT AC
 1156 4430 JMS I XIOTH /IOT 6134! CLEN
 1157 4456 JMS I XSNDAY /CHECK SEND AND RECEV REGISTERS
 1160 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
 1161 4473 JMS I ERROR /ERRORI EBABLE REGISTER FAILED
 1162 4457 TST57 /TST57 ERROR MESSAGE
 1163 1153 /SCOPE LOOP

/ DOES ENABLE REGISTER SURVIVE PATTERN 2525 ?

1164 1016 TAD K2525 /GET AC NUMBER
 1165 4425 JMS I XIOTF /IOT 6132! CLOE
 1166 7300 CLA CLL /CLEAR THE AC AND LINK
 1167 4426 JMS I XIOTF1 /IOT 6132! CLOE
 1170 7340 CLA CLL CMĀ /AC TO 7777

PAL10 V142 22 OCT 73 9155

PAGE 1-15

```

1171 4430 JMS ! X10TH /10T 6134, CLEN
1172 4456 JMS ! XSNDRV /CHECK SEND AND RECEV REGISTERS
1173 4472 JMS ! NERROR /CHECK NON-ERROR HANDLER
1174 4473 JMS ! ERROR /ERROR! ENABLE REGISTER FAILED
1175 4460 4460 /TST60 ERROR MESSAGE
1176 1164 TST60 /SCOPE LOOP

```

```

//DOES ENABLE REGISTER SURVIVE PATTERN 5252 ?

```

```

1177 1017 TAD K5252 /GET AC NUMBER
1200 4425 JMS ! X10TP /10T 6132, CLOSE
1201 7300 CLA CLL /CLEAR THE AC AND LINK
1202 4426 JMS ! X10TP1 /10T 6132, CLOSE
1203 7340 CLA CLL CMA /AC TO 7777
1204 4430 JMS ! X10TH /10T 6134, CLEN
1205 4456 JMS ! XSNDRV /CHECK SEND AND RECEV REGISTERS
1206 4472 JMS ! NERROR /CHECK NON-ERROR HANDLER
1207 4473 JMS ! ERROR /ERROR! ENABLE REGISTER FAILED
1210 4461 4461 /TST61 ERROR MESSAGE
1211 1177 TST61 /SCOPE LOOP

```

```

//DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN ?

```

```

1212 7340 CLA CLL CMA /AC TO 7777
1213 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
1214 1016 TAD K2525 /GET AC NUMBER
1215 4426 JMS ! X10TP1 /10T 6132, CLOSE
1216 7040 CMA /COMPLEMENT AC
1217 4426 JMS ! X10TP1 /10T 6132, CLOSE
1220 7300 CLA CLL /CLEAR THE AC AND LINK
1221 4430 JMS ! X10TH /10T 6134, CLEN
1222 4456 JMS ! XSNDRV /CHECK SEND RECEV REGISTERS
1223 4472 JMS ! NERROR /CHECK NON-ERROR HANDLER
1224 4473 JMS ! ERROR /ERROR! ENABLE REGISTER FAILED
1225 4462 4462 /TST62 ERROR MESSAGE
1226 1212 TST62 /SCOPE LOOP

```

```

//DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN ?

```

```

1227 7340 CLA CLL CMA /AC TO 7777
1230 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
1231 1017 TAD K5252 /GET AC NUMBER
1232 4426 JMS ! X10TP1 /10T 6132, CLOSE
1233 7340 CMA /COMPLEMENT AC
1234 4426 JMS ! X10TP1 /10T 6132, CLOSE
1235 7300 CLA CLL /CLEAR THE AC AND LINK
1236 4430 JMS ! X10TH /10T 6134, CLEN
1237 4456 JMS ! XSNDRV /CHECK SEND AND RECEV REGISTERS
1238 4472 JMS ! NERROR /CHECK NON-ERROR HANDLER
1241 4473 JMS ! ERROR /ERROR! ENABLE REGISTERS
1242 4463 4463 /TST63 ERROR MESSAGE
1243 1227 TST63 /SCOPE LOOP

```

```

//DO AC TO ENABLE REGISTER AND
//ENABLE REGISTER TO AC TRANSFERS

```

/*CHECK ALL COMBINATIONS

```

1244 1040 TAD REGA          /GET AC NUMBER
1245 4425 JMS I XIOTF        /10T 61321 CLOE
1246 7340 CLA CLL CMĀ       /AC TO 7777
1247 4430 JMS I XIOTW        /10T 61341 CLEN
1250 4456 JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
1251 4472 JMS I NERROR      /CHECK NON-ERROR HANDLER
1252 4473 JMS I ERROR        /ERROR! AC OR ENABLE REGISTER FAILED.
1253 4464 TST64              /TST64 ERROR MESSAGE
1254 1244 /SCOPE LOOP

```

```

/*DOES ENABLE REGISTER SURVIVE COMPLEMENT PATTERN.
/DO ALL COMBINATIONS,

```

```

1255 7340 TAD REGA          /AC TO 7777
1256 3070 CLA CLL CMĀ       /SAVE OUTPUT FOR ERROR PRINTER
1257 1040 JMS I XIOTF        /GET AC NUMBER
1258 4426 TAD REGA          /10T 61321 CLOE
1260 7040 JMS I XIOTF1       /COMPLEMENT THE AC
1261 4426 CLA CLL           /10T 61321 CLOE
1262 4426 JMS I XIOTF1       /10T 61321 CLOE
1263 4430 JMS I XIOTW        /10T 61341 CLEN
1264 4456 JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
1265 4472 JMS I NERROR      /CHECK NON-ERROR HANDLER
1266 4473 JMS I ERROR        /ERROR! AC OR ENABLE REGISTER FAILED.
1267 4465 TST65              /TST65 ERROR MESSAGE
1270 1255 /SCOPE LOOP

```

```

/*DOES ENABLE REGISTER SURVIVE RANDOM PATTERN ?

```

```

1271 4455 TST66              /GET RANDOM NUMBER
1272 4425 JMS I XIOTF        /10T 61321 CLOE
1273 7300 CLA CLL           /CLEAR THE AC AND LINK
1274 4430 JMS I XIOTW        /10T 61341 CLEN
1275 4456 JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
1276 4472 JMS I NERROR      /CHECK NON-ERROR HANDLER
1277 4493 JMS I ERROR        /ERROR! ENABLE REGISTER FAILED
1300 4466 TST66              /TST66 ERROR MESSAGE
1301 1271 /SCOPE LOOP

```

```

/*DOES ENABLE REGISTER SURVIVE RANDOM COMPLEMENT PATTERN ?

```

```

1302 7340 TST67              /AC TO 7777
1303 3070 CLA CLL CMĀ       /SAVE OUTPUT FOR ERROR PRINTER
1304 1757 JMS I RANDY       /GET RANDOM NUMBER
1305 4426 JMS I XIOTF1       /COMPLEMENT AC
1306 7040 CLA CLL           /10T 61321 CLOE
1307 4426 JMS I XIOTF1       /10T 61341 CLEN
1310 4430 JMS I XSNDRV      /CHECK SEND AND RECEV REGISTERS
1311 4456 JMS I NERROR      /CHECK NON-ERROR HANDLER
1312 4472 JMS I ERROR        /ERROR! ENABLE REGISTER FAILED
1313 4473 TST67              /TST67 ERROR MESSAGE
1314 4467 1302 /SCOPE LOOP

```

PA110 V142

PAGE 1•17

22E OCT 73 9155 PAGE 1•17

/ DOES READING ENABLE REGISTER CHANGE TIS CONTENTS ?
TST70, CLA CLL CMĀ /AC TO 7777
1316 7340 DCA REGA /GET AC NUMBER
1317 3040 TAD K2525 /DO 4096 TIMES
1320 1016 JMS 1 X10TF /CHECK NON-ERROR HANDLER
1321 4425 CLA CLL CMĀ /AC TO 7777
1322 7340 JMS 1 X10TH /DO 4096 TIMES
1323 4430 JMS 1 X10TH /CHECK SEND AND RECEV REGISTERS
1324 4496 JMS 1 XSNDRV /AC TO 7777
1325 7610 SKP CLA /CLEAR THE AC AND LINK
1326 5332 JMP T70A /CHECK SEND RECEV REGISTERS
1327 2041 ISZ REGB /SCOPE LOOP
1328 5322 JMP T70B /UPDATE COUNTER
1330 1017 JMS 1 X10TP /CHECK NON-ERROR HANDLER
1331 4492 JMS 1 X10TH /AC AND LINK
1332 4473 JMS 1 X10TH /ENABLE REGISTER FAILED
1333 4470 4470 /TST70 ERROR MESSAGE
1334 1316 TST70 /SCOPE LOOP

/ DOES READING ENABLE REGISTER CHANGE TIS CONTENTS ?
TST71, CLA CLL CMĀ /AC TO 7777
1335 7340 DCA REGA /GET AC NUMBER
1336 3040 TAD K5252 /DO 4096 TIMES
1337 1017 JMS 1 X10TP /CHECK NON-ERROR HANDLER
1340 4425 CLA CLL /AC AND LINK
1341 7300 JMS 1 X10TH /DO 4096 TIMES
1342 4430 JMS 1 X10TH /CHECK SEND RECEV REGISTERS
1343 4496 JMS 1 XSNDRV /AC TO 7777
1344 7610 SKP CLA /CLEAR THE AC AND LINK
1345 5351 JMP T71A /CHECK SEND RECEV REGISTERS
1346 2041 ISZ REGB /SCOPE LOOP
1347 5341 JMP T71B /UPDATE COUNTER
1350 4492 JMS 1 X10TP /CHECK NON-ERROR HANDLER
1351 4473 JMS 1 X10TH /AC AND LINK
1352 4491 JMS 1 X10TH /ENABLE REGISTER FAILED
1353 1335 4471 /TST71 ERROR MESSAGE
TST71 /SCOPE LOOP

/ DOES ENABLE REGISTER SURVIVE FAST TOGGLE ?
TST72, TAD REGA /GET AC NUMBER
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
1354 1040 TAD REGA /DO 4096 TIMES
1355 3090 JMS 1 X10TS /CHECK SEND RECEV REGISTERS
1356 1040 TAD REGA /AC AND LINK
1357 4434 JMS 1 X10TS /DO 4096 TIMES
1358 3071 DCA RECEV /SAVE INPUT FOR ERROR PRINTER
1360 1071 TAD RECEV /CHECK SEND RECEV REGISTERS
1361 1071 JMS 1 X10NUV /CHECK NON-ERROR HANDLER
1362 4476 JMS 1 X10NUV /AC AND LINK
1363 4492 JMS 1 X10NUV /ENABLE REGISTER FAILED
1364 4473 JMS 1 X10NUV /TST72 ERROR MESSAGE
1365 4472 4472 /SCOPE LOOP
1366 1354 TST72 /DOES CLRZ CLEAR ENABLE REGISTER?
TST73, CLA CLL CMĀ /AC TO 7777
JMS 1 X10TF1 /DO 4096 TIMES
CLA CLL CMĀ /CLEAR THE AC AND LINK

1367 7340 4426 /DO 4096 TIMES
1370 4426 7340 /CHECK NON-ERROR HANDLER
1371 7340 /AC AND LINK

10

PAGE 1•18

V142 22-OCT-73 9155

1372 4423 JMS I X10TÖ /10T 6130!, CLZE
 1373 7300 CLA CLL /CLEAR THE AC AND LINK
 1374 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
 1375 7340 CLA CLL CMÄ /AC TO 7777
 JMS I X10TH /10T 6134!, CLEN
 SNA CLA /WAS REGISTER ALL 0'S
 JMS I NERROR /CHECK NON-ERROR HANDLER
 JMS I ERROR /ERROR CLZE OR CLEN FAILED,
 4473 TST73 /TST73 ERROR MESSAGE
 1367 /SCOPE LOOP

/DOES CLZE CLEAR ENABLE REGISTER?

TST74, CLA CLL CMÄ /AC TO 7777
 JMS I X10TP /10T 6132!, CLOE
 CLA CLL /COMPLEMENT THE AC
 JMS I X10TÖ /10T 6130!, CLZE
 CLA CLL CMÄ /AC TO 7777
 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
 JMS I X10TH /10T 6134!, CLEN
 CMA /COMPLEMENT AC
 SNA CLA /WAS REGISTER ALL 0'S?
 JMS I NERROR /CHECK NON-ERROR HANDLER
 JMS I ERROR /ERROR CLZE OR CLEN FAILED,
 4474 TST74 /TST74 ERROR MESSAGE
 1404 /SCOPE LOOP

/DOES CLZE CLEAR ENABLE REGISTER?

TAD K2525, JMS I X10TP /10T 6132/CLOE
 CMA /COMPLEMENT THE AC
 JMS I X10TÖ /10T 6130!, CLZE
 CMA /COMPLEMENT AC
 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
 JMS I X10TH /10T 6134!, CLEN
 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
 JMS I NERROR /CHECK NON-ERROR HANDLER
 JMS I ERROR /ERROR CLZE, CLOE, OR CLEN FAILED
 4475 TST75 /TST75 ERROR MESSAGE
 1421 /SCOPE LOOP

/DOES CLZE CLEAR ENABLE REGISTER?

TAD K5252, JMS I X10TP /GET AC NUMBER
 CMA /10T 6132!, CLOE
 JMS I X10TÖ /COMPLEMENT AC
 CMA /10T 6130!, CLZE
 DCA SEND /COMPLEMENT AC
 JMS I X10TH /10T 6134!, CLEN
 JMS I XSNDRV /SAVE OUTPUT FOR ERROR PRINTER
 JMS I NERROR /CHECK SEND AND RECEV REGISTERS
 JMS I ERROR /CHECK NON-ERROR HANDLER
 4476 TST76 /ERROR ENABLE REGISTER FAILED
 1435 1437 4425 7840 4423 7040 3070 4426 7842 4423 7042 4425 7040 3070 4427 4430 4430 4431 4432 4433 4434 1421 1422 1424 1425 1426 1427 1428 1429 1430 1431 1432 1433 1434 1435 1436 1437 1438 1439 1440 1441 1442 1443 1444 1445 1446 1447

PAL10 V142 22 OCT 73 9155 PAGE 1919
1450 1435 TST76 /SCOPE LOOP

/ DOES CLZE CLEAR ENABLE REGISTER?
/ CHECK ALL COMBINATIONS

1451 1040 TAD REGA /GET AC NUMBER
1452 4425 JMS 1 X10TF /IOT 6132, CLOSE
1453 4423 JMS 1 X10TD /IOT 6130, CLZE
1454 7300 CLA CLL /CLEAR THE AC AND LINK
1455 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
1456 7340 CLA CLL CMÄ /AC TO ALL 1'S
1457 4430 JMS 1 X10TH /IOT 6134, CLEN
1460 7650 SNA CLA /WAS REGISTER ALL 0'S?
1461 4472 JMS 1 NERROR /CHECK NON-ERROR HANDLER
1462 4473 JMS 1 ERROR /ERRORICLZE, CLOE, OR CLEN FAILED
1463 4477 4477 /TST77 ERROR MESSAGE
1464 1451 /SCOPE LOOP

/ DOES CLZE CLEAR ENABLE REGISTER?
/ DO ALL COMBINATIONS

1465 1040 TAD REGA /GET AC NUMBER
1466 4425 JMS 1 X10TF /IOT 6132, CLOSE
1467 7040 CMA /COMPLEMENT THE AC
1470 4423 JMS 1 X10TD /IOT 6130, CLZE
1471 7040 CMA SEND /COMPLEMENT THE AC
1472 3070 JMS 1 X10TH /SAVE OUTPUT FOR ERROR PRINTER
1473 4430 JMS 1 XSDRY /CHECK SEND AND RECEV REGISTERS
1474 4436 JMS 1 XSDRY /IOT 6134, CLEN
1475 4472 JMS 1 NERROR /CHECK NON-ERROR HANDLER
1476 4473 JMS 1 ERROR /ERRORICLZE, CLOE, OR CLEN FAILED
1477 4500 4500 /TST100 ERROR MESSAGE
1500 1465 TST100 /SCOPE LOOP

/ DOES CLZE SURVIVE RANDOM PATTERN ?

1501 4455 JMS 1 RANDY /GET RANDOM NUMBER
1502 4425 JMS 1 X10TF /IOT 6132, CLOSE
1503 4423 JMS 1 X10TD /IOT 6130, CLZE
1504 7500 CLA CLL /CLEAR THE AC AND LINK
1505 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
1506 4430 JMS 1 X10TH /IOT 6134, CLEN
1507 4456 JMS 1 XSDRY /CHECK SEND AND RECEV REGISTERS
1510 4472 JMS 1 NERROR /CHECK NON-ERROR HANDLER
1511 4473 JMS 1 ERROR /ERRORICLZE, CLOE, OR CLEN FAILED
1512 4501 4501 /TST101 ERROR MESSAGE
1513 1501 TST101 /SCOPE LOOP

/ DOES CLZE SURVIVE RANDOM COMPLEMENT PATTERN ?

TST102, JMS 1 RANDY /GET RANDOM NUMBER
JMS 1 X10TF /IOT 6132, CLOSE
CMA /COMPLEMENT AC

1514 4455
1515 4425
1516 7040

PAGE 1•24

V142 22 OCT 73 9155

1517 4423 JMS ! X10T6 /10T 6130, CLZE
1520 7040 CMA /COMPLEMENT AC
1521 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
1522 4430 JMS ! X10TH /10T 6134, CLEN
1523 4456 JMS ! XSNDRV /CHECK SEND AND RECEV REGISTERS
1524 4492 JMS ! NERROR /CHECK NON-ERROR HANDLER
1525 4493 JMS ! ERROR /ERROR! ENABLE REGISTER FAILED
1526 4502 4502 /TST102 ERROR MESSAGE
1527 1514 TST102 /SCOPE LOOP

/ DOES CLZE SURVIVE FAST TOGGLE ?

TST103, TAD REGA /GET AC NUMBER
JMS ! X10TP /10T 6132, CLOE
JMS ! X10TS3 /10T'S 6130 AND 6134
DCA RECEV /SAVE INPUT FOR ERROR PRINTER
1071 TAD RECEV
JMS ! XSNDRV /CHECK SEND RECEV REGISTERS
JMS ! NERROR /CHECK NON-ERROR HANDLER
JMS ! ERROR /ERROR! ENABLE REGISTER FAILED
4503 4503 /TST103 ERROR MESSAGE
1530 1040 TST103 /SCOPE LOOP

/ DOES AC TRANSFER TO BUFFER THEN TO COUNTER ?

TST104, JMS ! X10TC /10T 6133, CLAB
CLA CLL CMA /AC TO ALL 1'S
JMS ! X10TR /10T 6137, CLCA
SNA CLA /WAS COUNTER ALL 0'S?
JMS ! NERROR /CHECK NON-ERROR HANDLER
JMS ! ERROR /ERROR! CLAB OR CLCA FAILED
4104 4104 /TST104 ERROR MESSAGE
1541 1541 TST104 /SCOPE LOOP

/ DOES AC TRANSFER TO BUFFER THEN TO COUNTER?

TST105, CLA CLL CMA /10T 6133, CLAB
JMS ! X10TG /AC TO ALL 1'S
JMS ! X10TR /10T 6137, CLCA
CMA /COMPLEMENT THE AC
SNA CLA /WAS COUNTER ALL 1'S?
JMS ! NERROR /CHECK NON-ERROR HANDLER
JMS ! ERROR /ERROR! CLAB OR CLCA FAILED
4163 4163 TST105 /TST105 ERROR MESSAGE
1551 1551 TST105 /SCOPE LOOP

/ DOES COUNTER SURVIVE PATTERN 2525 ?

TST106, TAD K2525 /GET AC NUMBER
JMS ! X10TG /10T 6133, CLAB
CLA CLL /CLEAR THE AC AND LINK
JMS ! X10TR /10T 6137, CLCA
JMS ! XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS ! NERROR /CHECK NON-ERROR HANDLER
1563 1016
1564 4427
1565 7300
1566 4433
1567 4456
1570 4492

BA110 V142 22 OCT 73 9155

PAGE 1*24

1571 4473 JMS 1 ERROR /ERR0R! COUNTER FAILED
1572 4106 4106 /TST106 ERROR MESSAGE
1573 1563 /SCOPE LOOP

/DOES COUNTER SURVIVE PATTERN 5252 ?

```
1574 1017 TAD K5252 /GET AC NUMBER
1575 4427 JMS ! X10TG /IOT 6133, CLAB
1576 7340 CLA CLL CM& /AC TO ALL 7777
1577 4433 JMS ! X10TK /IOT 6137, CLCA
1578 4456 JMS ! XSNDRV /CHECK SEND AND RECEV REGISTERS
1600 4472 JMS ! NERROR /CHECK NON-ERROR HANDLER
1602 4473 JMS ! ERROR /ERR0R! COUNTER FAILED
1603 4107 4107 /TST107 ERROR MESSAGE
1604 1574 /SCOPE LOOP
```

/DOES AC TRANSFER TO BUFFER THEN TO COUNTER?
/CHECK ALL COMBINATIONS

```
1605 1040 TAD REGA /IOT 6133, CLAB
1606 4427 JMS ! X10TG /COMPLEMENT THE AC
1607 7240 CLA /IOT 6137, CLCA
1610 4433 JMS ! X10TK /CHECK SEND AND RECEV REGISTERS
1611 4456 JMS ! XSNDRV /CHECK NON-ERROR HANDLER
1612 4492 JMS ! NERROR /ERR0R! CLAB OR CLCA FAILED
1613 4493 JMS ! ERROR /TST110 ERROR MESSAGE
1614 4110 4110 /SCOPE LOOP
1615 1605 TST110
```

/DOES COUNTER SURVIVE FAST TOGGLE?

```
1616 1040 TAD REGA /GET AC NUMBER
1617 3090 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
1620 1070 TAD SEND
1621 4436 JMS ! X10TS2 /IOT 6133 AND 6137
1622 3091 DCA RECEV /SAVE INPUT FOR ERROR PRINTER
1623 1071 TAD RECEV
1624 4456 JMS ! XSNDRV /CHECK SEND AND RECEV REGISTERS
1625 4492 JMS ! NERROR /CHECK NON-ERROR HANDLER
1626 4493 JMS ! ERROR /ERR0R! CLAB OR CLCA FAILED
1627 4111 4111 /TST111 ERROR MESSAGE
1630 1616 TST111 /SCOPE LOOP
```

/DOES CAF AFFECT COUNTER ?

```
1631 1040 TAD REGA /GET AC NUMBER
1632 4427 JMS ! X10TG /IOT 6133, CLAB
1633 6007 6007 /CAF OR CLEAR THE WORLD!
1634 4433 JMS ! X10TK /IOT 6137, CLCA
1635 4456 JMS ! XSNDRV /CHECK SEND AND RECEV REGISTERS
1636 4472 JMS ! NERROR /CHECK NON-ERROR HANDLER
1637 4473 JMS ! ERROR /ERR0R! CLAB OR CLCA FAILED,
1640 4112 4112 /TST112 ERROR MESSAGE
```

10
1641 1631

22@QCT#73 9155 PAGE 1#22
TST112 /SCOPE LOOP

/DOES READING COUNTER CHANGE ITS CONTENTS?
/PATTERN 2525,

TST113, CLA CLL CMĀ /AC TO 7777
DCA REGA
TAD K2525
JMS I XIOTG /IOT 6133, CLAB
JMS I XIOTK /IOT 6137, CLCA
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
SKP
JMP T113A
JSZ REGB
JMP T113B
JMS I NERROR /CHECK NON-ERROR
JMS I ERROR /ERROR! CLAB OR CLCA FAILED
T113A, 4113 /TST113 ERROR MESSAGE
TST113 /SCOPE LOOP

/DOES READING COUNTER CHANGE ITS CONTENTS?
/PATTERN 5252

TST114, CLA CLL CMĀ /AC TO 7777
DCA REGA
TAD K5252
JMS I XIOTG /IOT 6133, CLAB
JMS I XIOTK /IOT 6137, CLCA
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
SKP
JMP T114A
JSZ REGB
JMP T114B
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR! COUNTER FAILED
T114A, 4114 /TST114 ERROR MESSAGE
TST114 /SCOPE LOOP

/DOES COUNTER SURVIVE RANDOM PATTERN ?

TST115, JMS I RANDY /GET RANDOM NUMBER
JMS I XIOTG /IOT 6133, CLAB
JMS I CLL CMĀ
JMS I XIOTK /IOT 6137, CLCA
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR! COUNTER FAILED
T115 4115 /TST115 ERROR MESSAGE
TST115 /SCOPE LOOP

/TEST FOR NO INT, ROST.

TST116, CLA CLL CMĀ /AC TO 7777

1787 7340

PAL#	V142	22 OCT 73	9155
	1710	4427	JMS ! X10T6 DCA REGA
	1711	3040	TAD K0010
	1712	1142	TAD K0600
	1713	1147	JMS ! X10TP JMS ! XPIG01
	1714	4425	JMS ! NERROR JMS ! ERROR
	1715	4447	JMS ! ERROR TST116
	1716	4472	TST117
	1717	4473	TST116
	1720	1116	/TST116, ERROR MESSAGE
	1721	1707	/SCOPE LOOP
			<i>/DOES CLSK SKIP ON CLOCK OVERFLOW?</i>
			<i>/SKIP EXPECTED, MODE 0, RATE 6</i>
	1722	7340	TST117, CLA CLL CMĀ JMS ! X10TG
	1723	4427	CLA CLL TAD K0600
	1724	7300	JMS ! X10TP JMS ! X10TE
	1725	1147	JMS ! X10TP JMS ! X10TE
	1726	4425	JMS ! X10TP JMS ! X10TE
	1727	4424	SKP JMS ! NERROR
	1730	7410	JMS ! NERROR JMS ! ERROR
	1731	4472	JMS ! ERROR TST117
	1732	4493	/TST117
	1733	0517	ERROR MESSAGE
	1734	1722	/SCOPE LOOP
			<i>/DOES OVERFLOW REMAIN SET ?</i>
	1735	7340	TST120, CLA CLL CMĀ JMS ! X10TG
	1736	4427	DCA REGA
	1737	3040	TAD K0600
	1740	1147	JMS ! X10TP JMS ! X10TE
	1741	4425	JMS ! X10TE
	1742	4424	JMP T120A
	1743	5351	ISZ REGB
	1744	2041	JMP * ¹
	1745	5344	JMS ! X10TE
	1746	4424	SKP JMS ! NERROR
	1747	7410	JMS ! NERROR JMS ! ERROR
	1750	4492	JMS ! NERROR T120A, 0520
	1751	4473	/TST120
	1752	0520	ERROR MESSAGE
	1753	1735	/SCOPE LOOP
			<i>/DOES CAF CLEAR THAT FLAG ?</i>
	1754	7340	TST121, CLA CLL CMĀ JMS ! X10TG
	1755	4427	DCA REGA
	1756	3040	TAD K0600
	1757	1147	JMS ! X10TP JMS ! X10TE
	1760	6425	JMS ! X10TE
	1761	4424	JMP * ¹
	1762	5361	6007
	1763	6007	/CAF OR CLEAR THE WORLD
	1764	4424	JMS ! X10TE

1B V142 22 OCT 73 9135 PAGE 1026
 1765 4492 JMS ! NERRR /CHECK NON-ERROR HANDLER
 1766 4493 T121A, JMS ! ERROR /ERROR! CAF OR OVERFLOW FAILED
 1767 0121 0121 /TSY121 ERROR MESSAGE
 1770 1754 TST121 /SCOPE LOOP

/ DOES CLSK SKIP ON OVERFLOW?
 / SKIP EXPECTED, RATE 2⁶, MODE 0

/ TST122, TAD K7773
 DCA REGB /AC TO 7777
 TAD K0200 /10T 6133, CLAB
 DCA REGE /GET ENABLES
 CLA CLL CHA /10T 6132, CLOE
 JMS ! XIOTG
 DCA REGA
 TAD REGE
 JHS ! XIOTF
 1S2 REGD
 JNF ! XIOTF
 JHS ! XIOTE
 JMP T122A /WAIT
 JMP T122A /10T 6131, CLSK
 /NO OVERFLOW FOUND

1S2 REGD
 TAD K0100 /UPDATE CLOCK RATE
 DCA REGE /CAF OR CLEAR THE WORLD

0007 ISE REGB
 JHP ! XCRS1 /AC TO 7777
 JMS ! NERRR /CHECK NON-ERROR HANDLER
 JMS ! ERROR /ERROR! CLSK OR OVERFLOW FAILED
 T5222 /TST122 ERROR MESSAGE
 TST122 /SCOPE LOOP

/ DOES CLSK SKIP ON OVERFLOW?
 / SKIP EXPECTED, RATE 2⁶, MODE 1

/ TST123, TAD K7773
 DCA REGB /AC TO 7777
 TAD K1000 /10T 6133, CLAB
 DCA REGE /GET ENABLES
 CLA CLL CHA /10T 6132, CLOE
 JMS ! XIOTG
 DCA MEGA
 TAD REGE
 JMS ! XIOTF
 1S2 REGD
 TAD K0100 /WAIT
 JMS ! XIOTF
 JMP T123A /10T 6131, CLSK
 /NO OVERFLOW FOUND

DCA REGE /UPDATE CLOCK RATE
 TAD K0100 /CAF OR CLEAR THE WORLD

1S2 REGD
 0007 ISE REGB /DO RATES 2⁶
 JMP T123B /CHECK NON-ERROR HANDLER
 JMS ! NERRR /ERROR! CLSK OR OVERFLOW FAILED

T123A, JMS ! ERROR /TST123 ERROR MESSAGE

```

222280CT1#73 9155 PAGE 1#25 /TST123 ERROR MESSAGE
0523 TST123 /SCOPE LOOP
    / DOES CLSK SKIP ON OVERFLOW ?
    / SKIP EXPECTED, MODE 2, RATE 2#6
    / TST124, TAD K7773
        DCA REGB
        TAD K2000
        TAD K0200
        DCA REGE
        CLA CLL CM&
        JMS ! X107G /IOT 6133, CLAB
        DCA REGA
        TAD REGE /GET ENABLES
        JMS ! X107F /IOT 6132, CLOSE
        ISZ REGD
        JMP !#1 /WAIT ABOUT 15 MS
        JMS ! XI0TE /IOT 6131, CLSK
        JMP T124A /UPDATE RATE
        TAD K0100
        DCA REGE
        6007 /CAF OR CLEAR THE WORLD
        ISZ REGB /DO RATES 2#6
        JMS ! NERROR /CHECK NON-ERROR HANDL
        JMS ! ERROR /ERROR! CLSK OR OVERFL
        0524 /TST124 ERROR MESSAGE
        TST124 /SCOPE LOOP

    / DOES CLSK SKIP ON OVERFLOW ?
    / SKIP EXPECTED, RATE 2#6, MODE 3
    / TST125, TAD K7773
        DCA REGB
        TAD K3000
        TAD K0200
        DCA REGE /MAKE ENABLES
        CLA CLL CM&
        JMS ! X107G /SAVE ENABLES
        DCA REGA
        TAD REGE /GET ENABLES
        JMS ! X107F /IOT 6132, CLOSE
        ISZ REGD
        JMP !#1 /WAIT ABOUT 15 MS
        JMS ! XI0TE /IOT 6131, CLSK
        JMP T125A /UPDATE RATE
        TAD K0100
        DCA REGE
        ISZ REGB /DO RATES 2#6
        JMP T125B /CHECK NON-ERROR HANDL
        JMS ! NERROR /ERROR! CLSK OR OVERFL
        JMS ! ERROR /TST125 ERROR MESSAGE
        0525 /SCOPE LOOP
        TST125

```


PAL10 V142 22 OCT 73 9155 PAGE 1#27
 22002 2152 TST127 /SCOPE LOOP

/DOES CLSA READ OVERFLOW BIT ?

```

22003 7340 TST130, CLA CLL CMĀ
22004 4427 JMS ! XIOTG /IOT 6132!, CLOSE
22005 7330 CLA CLL CML RAR /AC TO 4000
22006 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
22007 7313 CLA CLL IAČ RTR /AC TO 4000
2210 1147 TAD K0600 /GET ENABLE
2211 4426 JMS ! XIOTP1
2212 4424 JMS ! XIOTE /IOT 6131!, CLSK
2213 5212 JMP *1
2214 7350 CLA CLL CMĀ RAR /AC TO 3777
2215 4431 JMS ! XIOTI /IOT 6135!, CLSA
2216 4456 JMS ! XSNDRV /CHECK SEND AND RECEV REGISTERS
2217 4492 JMS ! NERROR /CHECK NON-ERROR HANDLER
2220 4493 JMS ! ERROR /ERROR! CLSA OR OVERFLOW FAILED
2221 5130 TST130 /TST130 ERROR MESSAGE
2222 2203 /SCOPE LOOP
  
```

/DOES CLSA CLEAR OVERFLOW FLOP ?

```

2223 7340 TST131, CLA CLL CMĀ /AC TO 7777
2224 4427 JMS ! XIOTG /IOT 6133!, CLAB
2225 7313 CLA CLL IAČ RTR /AC TO 4000
2226 1147 TAD K0600 /GET ENABLE
2227 4426 JMS ! XIOTP1 /IOT 6132!, CLOSE
2230 4424 JMS ! XIOTE /IOT 6131!, CLSK
2231 5230 JMP *1
2232 7350 CLA CLL CMĀ RAR /AC TO 3777
2233 4431 JMS ! XIOTI /IOT 6135!, CLSA
2234 7360 CLA CLL /CLEAR AC AND LINK
2235 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
2236 7340 CLA CLL CMĀ
2237 4431 JMS ! XIOTI /IOT 6135!, CLSA
2240 7650 SNA CLA /WAS STATUS REGISTER ALL 0'S ?
2241 4492 JMS ! NERROR /CHECK NON-ERROR HANDLER
2242 4493 JMS ! ERROR /ERROR! CLSA OR OVERFLOW FAILED
2243 5131 TST131 /TST131 ERROR MESSAGE
2244 2223 /SCOPE LOOP
  
```

/DOES CLSA READ OVERFLOW BIT ?

```

7545 TST132, CLA CLL CMĀ /IOT 6133!, CLAB
7546 4427 JMS ! XIOTG /IOT 6133!, CLAB
7547 7300 CLA CLL
7548 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
7549 1147 TAD K0600 /GET ENABLES
7550 4426 JMS ! XIOTP1
7551 4424 JMS ! XIOTE /IOT 6132!, CLOSE
7552 5230 JMP *1
7553 7340 CLA CLL CMĀ RAL /AC TO 3777
7554 4431 JMS ! XIOTI /IOT 6135!, CLSA
7555 7650 SNA CLA /WAS STATUS A ?
  
```


PAL10

PAGE 1029

V142 22 OCT 73 9155

CLA CLL CMA
DCA REGA
TAD K1000
/GET ENABLES
JMS ! XIOTF1
JMS ! XIOTE
JMP ! =1
JMS ! XIOTK
JMS ! XSNDAV
JMS ! NERROR
JMS ! ERROR
4135
TST135

/DOES BUFFER TO COUNTER ON OVERFLOW ?
/RATE 4, MODE 2
/TST136, CLA CLL CMA
JMS ! XIOTG
DCA REGA
/SAVE OUTPUT FOR ERROR PRINTER
TAD K0400
TAD K2000
JMS ! XIOTF1
JMS ! XIOTE
JMP ! =1
JMS ! XIOTR
SNA CLA
JMS ! NERROR
JMS ! ERROR
4136
TST136

/DOES BUFFER TO COUNTER ON OVERFLOW ?
/RATE 4, MODE 2
/TST137, CLA CLL CMA
JMS ! XIOTG
DCA REGA
/SAVE OUTPUT FOR ERROR PRINTER
TAD K0400
TAD K3000
JMS ! XIOTF1
JMS ! XIOTE
JMP ! =1
CLA CLL CMA
SNA CLA
JMS ! NERROR
JMS ! ERROR
4137
TST137

/DOES INT. WITHOUT BIT 8 ?

7340
7351 4427
2352 3840
2353 3890
2354 1116
2355 1143
2356 4426
2357 4424
2358 5397
2361 4433
2362 7680
2363 4492
2364 4473
2365 4136
2366 2380

2367 7349
2370 4427
2371 3010
2372 3090
2373 1116
2374 1120
2375 4426
2376 4424
2377 7370
2400 7340
2401 4433
2402 7680
2403 4492
2404 4473
2405 4137
2406 2380

/AC TO 7777
/IOT 6133, CLAB

/GET ENABLES
JMS ! XIOTF1
JMS ! XIOTE
JMP ! =1
JMS ! XIOTR
SNA CLA
JMS ! NERROR
JMS ! ERROR
4136
TST136

/DOES BUFFER TO COUNTER ON OVERFLOW ?
/RATE 3, MODE 3
/TST137, CLA CLL CMA
JMS ! XIOTG
DCA REGA
/SAVE OUTPUT FOR ERROR PRINTER
TAD K0400
TAD K3000
JMS ! XIOTF1
JMS ! XIOTE
JMP ! =1
CLA CLL CMA
SNA CLA
JMS ! NERROR
JMS ! ERROR
4137
TST137

/DOES INT. WITHOUT BIT 8 ?

7340
7351 4427
2352 3840
2353 3890
2354 1116
2355 1143
2356 4426
2357 4424
2358 5397
2361 4433
2362 7680
2363 4492
2364 4473
2365 4136
2366 2380

2367 7349
2370 4427
2371 3010
2372 3090
2373 1116
2374 1120
2375 4426
2376 4424
2377 7370
2400 7340
2401 4433
2402 7680
2403 4492
2404 4473
2405 4137
2406 2380

10

V142 22 OCT 73 9135 PAGE 1630

2407 7340 TST140, CLA CLL GMÄ JHS I XIOTG /IOT 6133, CLAB
2410 4427 DCA REGA
2411 3040 CLA CLL 1AČ RTR /AC TO 4000
2412 7313 TAD K0007 /GET ENABLES
2413 1007 TAD K0600 /IOT 6132, CLOE
2414 1147 JHS I XIOTP /GO TO PI, NO PI EXPECTED
2415 4425 JHS I XPIG01 /CHECK NON-ERROR HANDLER
2416 4447 JHS I NERRR /ERROR! INT. RQST! OR ENA & FAILED
2417 4492 JHS I ERROR /TST140 ERROR MESSAGE
2420 4473 1149 /SCOPE LOOP
2421 1140 TST140

/DOES OVERFLOW CAUSE INT. RQST? 7
/RATE 6, MODE 8

2423 7320 TST141, CLA CLL GMÄ JHS I XIOTG /AC TO 7777
2424 4427 CLA CLL /IOT 6133, CLAB
2425 7300 CLA CLL /CLEAR THE AC AND LINK
2426 1014 TAD K4000
2427 1142 TAD K0010 /GET RATE + MODE
2430 1147 TAD K0600 /IOT 6132, CLOE
2431 4485 JHS I XIOTP /GO TO PI, PI EXPECTED
2432 4492 JHS I XPIG04 /CHECK NON-ERROR HANDLER
2433 4492 JHS I NERRR /ERROR! OVERFLOW OR ENA & FAILED
2434 4493 JHS I ERROR /TST141 ERROR MESSAGE
2435 1541 /SCOPE LOOP
2436 2423 TST141

/DOES INT. RQST, WITHOUT ENA? 7
/RATE 6, MODE 8

2437 7310 TST142, CLA CLL GMÄ JHS I XIOTG /AC TO 7777
2440 4427 CLA CLL /IOT 6133, CLAB
2441 7300 CLA CLL /CLEAR THE AC AND LINK
2442 1142 TAD K0010 /GET RATE + MODE
2443 1147 TAD K0600 /IOT 6132, CLOE
2444 4425 JHS I XIOTP /GO TO PI, NO PI EXPECTED
2445 4494 JHS I XPIG03 /CHECK NON-ERROR HANDLER
2446 4472 JHS I NERRR /ERROR! ENA & FAILED
2447 4493 JHS I ERROR /TST142 ERROR MESSAGE
2450 1142 2437 TST142

/SUCCESS COUNT, COUNT 7
/RATE 6, MODE 8

2452 7340 TST143, CLA CLL GMÄ /AC TO 7777
2453 3040 DCA REGA /IOT 6133, CLAB
2454 4427 JHS I XIOTG
2455 1014 TAD K4000
2456 1142 TAD K0010 /GET RATE + MODE
2457 1147 JHS I XIOTP /IOT 6132, CLOE
2460 4425 JHS I XPIG02 /GO TO PI
2461 4490

PAL10 V142 229 OCT 73 9135

PAGE 1031

2462 4492 JMS ! NERROR
2463 4473 JMS ! ERROR
2464 1543 JMS ! ERROR
2465 2492 TST143

/DOES COUNTER COUNT # ?
/RATE 6, MODE 1

2466 7340 CLA CLL CLL
2467 3049 DCA REGA
2470 4427 JMS ! X10TP
TAD K5000
TAD K0010
TAD K0500
TAD K0000
JHS ! X10TP
JHS ! XPIGO2
JHS ! NERROR
JHS ! ERROR
1544 TST144

/DOES COUNTER COUNT # ?
/RATE 6, MODE 1

TST144, CLA CLL CLL
DCA REGA
JMS ! X10TP
TAD K5000
TAD K0010
TAD K0500
TAD K0000
JHS ! X10TP
JHS ! XPIGO2
JHS ! NERROR
JHS ! ERROR
1544 TST144

/DOES COUNTER COUNT # ?
/RATE 6, MODE 1

/GET RATE + MODE

/107 6133, CLAB

2471 1121
2472 1142
2473 1147
2474 4425
2475 4450
2476 4492
2477 4493
2500 1544
2501 2466

/DOES COUNTER COUNT # ?
/RATE 6, MODE 2

TST145, CLA CLL CLL
DCA REGA
JMS ! X10TP
TAD K5000
TAD K0010
TAD K0500
TAD K0000
JHS ! X10TP
JHS ! XPIGO2
JHS ! NERROR
JHS ! ERROR
1545 TST145

/DOES COUNTER COUNT # ?
/RATE 6, MODE 2

/GET RATE + MODE

/107 6133, CLAB

2502 7340
2503 3049
2504 4427
2505 1117
2506 1142
2507 1147
2510 4425
2511 4450
2512 4492
2513 4493
2514 1545
2515 2302

/DOES COUNTER COUNT # ?
/RATE 6, MODE 3

TAC TO 7777

/107 6133, CLAB

2516 7340 CLA CLL CLL
2517 3049 DCA REGA
2520 4427 JMS ! X10TP
TAD K7000
TAD K0010
TAD K0500
TAD K0000
JHS ! X10TP
JHS ! XPIGO2
JHS ! NERROR
JHS ! ERROR
1546 TST146

/DOES COUNTER COUNT # ?
/RATE 6, MODE 3

/GET ENABLES

/107 6132, CLOSE

/GO TO PI, PI EXPECTED

/CHECK NON-ERROR HANDLER

/ERROR! COUNTER OR MODE 3 FAILED

/TST146, ERROR MESSAGE

/SCOPE LOOP

/DOES OVERFLOW CAUSE RST#, ?
/RATE 2=6, MODE 6

/SCOPE LOOP

2532 1131 T5T147, TAD K7773
 2533 3041 DCA REGB
 2534 1014 TAD K4000
 2535 1142 TAD K0010
 2536 1015 TAD K0200
 2537 3044 DCA REGE
 2538 1014 CLA CLL CMH
 2539 7340 JMS 1 XIOTG
 2540 4427 DCA REGA
 2541 3049 TAD REGE
 2542 1014 JMS 1 XIOTP
 2543 4425 JMS 1 XPIGO1
 2544 4447 JMP Y147A
 2545 3355 6007 /CAF OR CLEAR THE WORLD
 2546 1013 TAD K0100
 2547 6007 TAD REGE
 2550 1014 1S2 REGB
 2551 2044 JUMP T147B
 2552 2044 JMS 1 NERROR
 2553 5337 JMS 1 ERROR
 2554 4492 T147A, 1547 /CHECK NON-ERROR HANDLER
 2555 4493 JMS 1 ERROR
 2556 1547 TST147 /ERROR! OVERFLOW OR MODE FAILED
 2557 2552 7557 /TST147 ERROR MESSAGE
 1547 /SCOPE LOOP

/DOES OVERFLOW CAUSE ROST, ?
 /RATE 2=6, MODE 1

2560 1131 T5T150, TAD K7773
 2561 3041 DCA REGB
 2562 1101 TAD K5000
 2563 1142 TAD K0200
 2564 1015 DCA REGE
 2565 3044 CLA CLL CMH
 2566 7340 JMS 1 XIOTG
 2567 4487 DCA REGA
 2568 3049 TAD REGE
 2569 1014 JMS 1 XIOTP
 2570 4425 JMS 1 XPIGO1
 2571 1014 JMP Y1CRSS
 2572 4425 6007 /CAF OR CLEAR THE WORLD
 2573 4447 TAD K0100
 2574 5573 TAD REGE
 2575 6007 1S2 REGB
 2576 1013 JMF 1 XCRSS
 2577 1014 JMS 1 NERROR
 2578 2044 JMS 1 ERROR
 2600 2041 1538 /CHECK NON-ERROR HANDLER
 2601 5274 JMS 1 NERROR
 2602 4492 JMS 1 ERROR
 2603 4493 1538 /ERROR! OVERFLOW OR MODE FAILED
 2604 1590 /TST150 ERROR MESSAGE
 2605 2560 /SCOPE LOOP

/DOES OVERFLOW CAUSE ROST, ?
 /RATE 2=6, MODE 2
 /TST151, TAD K7773
 1131 DCA REGB

V.142

22 OCT 73

PAGE 1

2610	1117	TAD	K6000			
2611	1142	TAD	K0010			
2612	1015	TAD	K0200			
2613	3044	DCA	REGE	/MAKE ENABLES		
	2614	CLM	CLL GM1	/ACT TO 7777		
	2615	JMS	I XIOTG	/IOT 6433; CLAB		
	2616	DCA	REGA			
	2617	TAD	REGE	/GET ENABLES		
	2618	JMS	I XIOTP	/IOT 6132; CLOE		
	2619	JMS	I XPIG01	/GO TO PI, PI EXPECTED		
	2620	JMP	T151A			
	2621	6007		/CAF OR CLEAR THE WORLD		
	2622	TAD	K0100			
	2623	TAD	REGE			
	2624	TAD	REGB			
	2625	JMP	T151B	/CHECK NONTERROR HANDLER		
	2626	JMS	I NERROR	/ERROR1 OVERFLOW OR MODE FAILED		
	2627	JMS	I ERROR	/TEST151 ERROR MESSAGE		
	2628	JMS	I 1551	/SCOPE 00P		
	2629	JMS	I TSI151			
	2630	JMS	I 1551A			
	2631	JMS	I 1551			
	2632	JMS	I TSI151			
	2633	JMS	I 1551			

```

    /DOES OVERFLOW CAUSE ROST?
    /RATE 0.071 MODE 1, DISABLE BIT 7

    TST#153, TAD K7770
    DCA REGB
    TAD K5000
    TAD K0010
    TAD K0020

```

10

PAGE 1034

22-057-73 9135

卷之三

PAL10 V142 22DEC73 9195

PAGE 1035

2746 4473 JMS ! ERROR
2747 1555 1555 /ERROR1 OVERFLOW OR COUNTER FAILED
2750 2736 TST155 /TST155 ERROR MESSAGE
/SCOPE LOOP

/DOES CLSK SKIP THEN INTERRUPT ?
/RATE 6, MODE 6

```
7340 TST156, CLA CLL CMĀ /AC TO 7777
2751 4427 JMS ! X10TC /IOT 6133, CLAB
2752 7339 CLA CLL CMĀ RAR
2753 4427 TAD K0010 /MAKE ENABLES
2754 11442 JMS ! X10TP /IOT 6132, CLOSE
2755 11447 TAD K0600 /IOT 6131, CLSK
2756 4425 JMS ! X10TE /WAIT FOR OVERFLOW
2757 4424 JMP !P4 /GO TO PI EXPECTED
2758 5357 JMS ! XPIG04 /CHECK NON-ERROR HANDLER
2761 4492 JHS ! NERROR /ERROR1 CLSK OR PI FAILED
2762 4492 JMS ! ERROR /TST156 ERROR MESSAGE
2763 4493 TST156 /SCOPE LOOP
```

/CHECK FOR NO INT! RQSY,
/MODE 6, RATE 6, DISABLE WITH CLSA

```
7340 TST157, CLA CLL CMĀ /AC TO 7777
2766 4427 JMS ! X10TC /IOT 6133, CLAB
2767 7339 CLA CLL CMĀ RAR /AC TO 4000
2770 7339 TAD K0600 /IOT 6132, CLOSE
2771 11442 JMS ! X10TP /IOT 6131, CLSK
2772 11442 TAD K0010 /WAIT FOR OVERFLOW
2773 4425 JMS ! X10TE /IOT 6135, CLSA
2774 4424 JMP !P4 /GO TO PI EXPECTED
2775 5374 JMS ! X10TY /CHECK NON-ERROR HANDLER
2776 4431 JMS ! XPIG03 /ERROR1 INT! RQST FAILED
2777 4451 JMS ! NERROR /TST157 ERROR MESSAGE
3900 4472 JMS ! ERROR /SCOPE LOOP
3901 4473 TST157 /SCOPE LOOP
```

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 2, MODE 6

```
7340 TST160, CLA CLL CMĀ /AC TO 7777
3905 3940 DCA REGA
5986 1151 TAU KIA
3907 3976 DCA KREGC
3910 4427 JMS ! X10TC /IOT 6133, CLAB
3911 1014 TAD K4000 /MAKE ENABLES
3912 1142 TAD K0200 /IOT 6132, CLOSE
3913 1015 JMS ! X10TP /CHECK NON-ERROR HANDLER
3914 4425 JMS ! XPIG05 /ERROR1 CLOCK FREQUENCY FAST
3915 4453 SKP CLA /ERROR1 CLOCK FREQUENCY FAST
3916 7610 JMS ! NERROR
3917 4492 JMS ! ERROR
3920 4493 TST157 /SCOPE LOOP
```

10 V142 22 OCT 73 9155 PAGE 1 of 36
3021 2160 2160 /TST160 ERROR MESSAGE
3022 3004 TST160 /SCOPE LOOP

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 2, MODE 0

3023 7340 TST161, CLA CLL CMA /AC TO 7777
3024 3040 DCA REGA
3025 1152 TAD KTA1
3026 3076 DCA KREGC
3027 4427 JMS I XIOTG
3030 1014 TAD K4000
3031 1142 TAD K0010
3032 1015 TAD K0200
3033 4425 JMS I XIOTP
3034 4453 JMS I XPIGOS
3035 4492 JMS I NERROR
3036 4493 JMS I ERROR
3037 2561 TST161
3040 3023 /SCOPE LOOP

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 3, MODE 0

3041 7340 TST162, CLA CLL CMA /AC TO 7777
3042 3040 DCA REGA
3043 1153 TAD KTB
3044 3076 DCA KREGC
3045 4427 JMS I XIOTG
3046 1014 TAD K4000
3047 1142 TAD K0010
3050 1145 TAD K0300
3051 4425 JMS I XIOTP
3052 4453 JMS I XPIGOS
3053 7610 SKP CLA
3054 4492 JMS I NERROR
3055 4493 JMS I ERROR
3056 2162 TST162
3057 3041 /SCOPE LOOP

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 3, MODE 0

3060 7340 TST163, CLA CLL CMA /AC TO 7777
3061 3040 DCA REGA
3062 1154 TAD KTB1
3063 3076 DCA KREGC
3064 4427 JMS I XIOTG
3065 1014 TAD K4000
3066 1142 TAD K0010
3067 1145 TAD K0300
3070 4425 JMS I XIOTP
3071 4453 JMS I XPIGOS
3072 4492 JMS I NERROR
3073 4493 JMS I ERROR /SCOPE LOOP

PAL10 V142 22 OCT 73 9195

PAGE 1 OF 37
/TST163 ERROR MESSAGE
/SCOPE LOOP

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 4, MODE B

5076 7340
5077 3040
3100 1195
3101 3096
3102 1196
5083 3043
5084 4427
3105 1014
3106 1142
3107 1156
3110 4425
3111 4493
3112 7610
3113 4472
3114 4493
3115 2164
3116 3096

/TST164, CLA CLL CMĀ /AC TO 7777

DCA REGA
TAD KTC
DCA KREGC
TAD KTC1
DCA REGD
JMS ! X107G
TAD K400E
TAD K001E
TAD K040E
JMS ! X107P
JMS ! XPIGOS
SKP CLA
JMS ! NERROR
JMS ! ERROR
2164
TST164

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 4, MODE B

5117 7340
5120 3040
3121 1195
3122 3096
3123 1197
3124 3043
5125 4427
5126 1014
3127 1142
3130 1116
3131 4425
3132 4493
5133 4492
5134 4493
3135 2565
3136 3117

/TST165, CLA CLL CMĀ /AC TO 7777
DCA REGA
TAD KTC
DCA KREGC
TAD KTC2
DCA REGD
JMS ! X107G
TAD K400E
TAD K001E
TAD K040E
JMS ! X107P
JMS ! XPIGOS
JMS ! NERROR
JMS ! ERROR
2565
TST165

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 5, MODE B

5137 7340
3140 3040
5141 7350
5142 4427
3143 7300
5144 1160
3145 3043
3146 1014

/TST166, CLA CLL CMĀ /AC TO 7777
DCA REGA
CLA CLL CMĀ RAR
JMS ! X107G
CLA CLL
TAD KTO
DCA REGD
TAD K400E

/SET TIMER FOR 10000 CPS CLOCK

10 V142 22 OCT 73 9155 PAGE 1-38

3147 1142 TAD K0010 /MAKE ENABLES
3150 1146 TAD K0500 /IOT 6132, CLOE
3151 4425 JMS I XIOTP
3152 4447 JMS I XPIGO1
3153 4472 JMS I NERROR
3154 4493 JMS I ERROR
3155 2166 T2166 /CHECK NON-ERROR HANDLER
3156 3157 TST166 /ERROR CLOCK FREQUENCY FAST
TST166 /SET TIMER FOR 10000 CPS CLOCK
TST166 /SCOPE LOOP

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 5, MODE 8

/ TST167, CLA CLL CMĀ /AC TO 7777
3160 3040 DCA REGA
3161 7350 CLA CLL CMĀ RAR /IOT 6133, CLAB
3162 4427 JMS I XIOTG /CLEAR THE AC AND LINK
3163 7309 CLL
3164 1161 TAD KTE1
3165 3043 DCA REGD
3166 1014 TAD K4000
3167 1142 TAD K0010 /MAKE ENABLES
3168 1146 TAD K0500 /IOT 6132, CLOE
3171 4425 JMS I XIOTP
3172 4458 JMS I XPIGO2
3173 4492 JMS I NERROR
3174 4473 JMS I ERROR
3175 2567 T2567 /CHECK NON-ERROR HANDLER
3176 3157 TST167 /ERROR CLOCK FREQUENCY SLOW
TST167 /SET TIMER FOR 10000 CPS CLOCK
TST167 /SCOPE LOOP

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 6, MODE 8

/ TST170, CLA CLL CMĀ /AC TO 7777
3177 7340 DCA REGA
3200 3040 TAD KTE1
3201 1162 DCA REGD
3202 3043 JMS I XIOTG /IOT 6133, CLAB
3203 4427 TAD K4000
3204 1014 TAD K0010 /MAKE ENABLES
3205 1142 TAD K0500 /IOT 6132, CLOE
3206 1147 JMS I XIOTP
3207 4425 JMS I XPIGO1
3210 4447 JMS I NERROR
3211 4492 JMS I ERROR
3212 4473 T2170 /CHECK NON-ERROR HANDLER
3213 2176 /ERROR CLOCK FREQUENCY FAST
3214 3157 TST170 /SET TIMER FOR 10000 CPS CLOCK
TST170 /SCOPE LOOP

/DOES CLOCK FREQUENCY TIME OUT ?
/RATE 6, MODE 8

/ TST171, CLA CLL CMĀ /AC TO 7777
3215 7340 DCA REGA
3216 3040 TAD KTE1
3217 1163 DCA REGD
3220 3043 JMS I XIOTG /IOT 6133, CLAB

PAL10 V142 22 OCT 73 9195 PAGE 1039

32222 1014 TAD K4000
3223 1142 TAD K0010
3224 1147 TAD K0600 /MAKE ENABLES
3225 4425 JMS ! XIOTG /IOT 6132, CLOSE
3226 4450 JMS ! XPIOG02
3227 4472 JMS ! NERROR /CHECK NON-ERROR HANDLER
3230 4493 JMS ! ERROR /ERROR! CLOCK FREQUENCY SLOW
3231 2571 TST171 /TST171, ERROR MESSAGE
3232 3215 /SCOPE LOOP

/ DOES COUNTER REALLY COUNT ?
/ RATE 2, MODE 0

3233 7340 TST172, CLA CLL CHA /AC TO 7777
3234 4427 JMS ! XIOTG /IOT 6133, CLAB
3235 3040 DCA REGB
3236 1015 TAD K0200 /GET RATE + MODE
3237 4426 JMS ! XIOTG /IOT 6132, CLOSE
3238 7300 JMS ! CLL /CLEAR THE AC AND LINK
3239 3042 DCA REGC
3240 7341 TAD REGB
3241 3041 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
3242 1041 JMS ! XIOTR /IOT 6131, CLCA
3243 3070 CIA
3244 4453 TAD REGB /COMPARE TO THIS REGISTER
3245 7341 SNA /ARE THEY THE SAME YET ?
3246 1041 SNA CLA /YES, TEST NEXT NUMBER
3247 7680 TAD REGB
3248 5254 JMS ! XIOTR /WAIT ABOUT 15 MS FOR REGISTER
3249 5254 TAD REGB /NUMBER NOT FOUND
3250 5254 JMS ! XIOTR /UPDATE COMPARE REGISTER
3251 2042 TAD REGB /TEST FOR NEXT COUNTER PULSE
3252 5244 JMS ! XIOTR /CHECK NON-ERROR HANDLER
3253 5257 TAD REGB /ERROR COUNTER FAILED
3254 2041 JMS ! XIOTR /TST172, ERROR MESSAGE
3255 5244 JMS ! XIOTR /SCOPE Loop

/ DOES COUNTER REALLY COUNT ?
/ RATE 3, MODE 0

3256 7340 TST173, CLA CLL CHA /AC TO 7777
3263 4427 JMS ! XIOTG /IOT 6133, CLAB
3264 3040 DCA REGB
3265 1045 TAD K0300 /GET RATE + MODE
3266 4426 JMS ! XIOTG /IOT 6132, CLOSE
3267 7300 JMS ! CLL /CLEAR THE AC AND LINK
3268 3042 DCA REGC
3269 3041 TAD REGB
3270 3070 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
3271 1041 JMS ! XIOTR /IOT 6131, CLCA
3272 3070 CIA
3273 4433 TAD REGB /COMPARE TO THIS REGISTER
3274 7041 SNA CLA /ARE THEY THE SAME YET ?
3275 1041 JMS ! XIOTR /YES, TEST NEXT NUMBER
3276 7650 JMS ! CLL /IOT 6132, CLOSE
3277 5303 TAD REGB
3300 2042 SNA CLA /CLEAR THE AC AND LINK

```

5293    JMP T17JB          /WAIT ABOUT 15 MS FOR REGISTER
5306    JMP T173A1         /NUMBER NOT FOUND
5303    2041              /UPDATE COMPARE REGISTER
5304    5267              /TEST FOR NEXT COUNTER PULSE
5305    4472              /CHECK NON-ERROR HANDLER
5306    4473              /ERROR! COUNTER FAILED
5307    4193              /TST173 ERROR MESSAGE
5310    3262              /SCOPE LOOP

/ DOES COUNTER REALLY COUNT ?
/ RATE 2, MODE 1
/ TST174: CLA CLL CHA          /AC TO 7777
   JMS I XIOTC                /IOT 6133, CLAB
   DCA REGA
   TAD K0200
   TAD K1000
   JMS I XIOTP1
   JMS I XIOTE
   JMP I1
   CLA CLL
   JMS I XIOTG
   DCA REGC
   TAD REGB
   DCA SEND
   JMS I XIOTR
   T174B1: CIA
   TAD REGB
   SNA CLA
   JMP T174A
   JMS I XIOTG
   JSE REGC
   JMP T174B
   JMS I XIOTC
   DCA REGA
   TAD K0400
   TAD K1000
   JMS I XIOTP1
   JMS I XIOTE
   JMP I1
   CLA CLL
   JMS I XIOTG
   DCA REGC
   TAD REGB

/ DOES COUNTER REALLY COUNT ?
/ RATE 4, MODE 1
/ TST175: CLA CLL CHA          /AC TO 7777
   JMS I XIOTC                /IOT 6133, CLAB
   DCA REGA
   TAD K0400
   TAD K1000
   JMS I XIOTP1
   JMS I XIOTE
   JMP I1
   CLA CLL
   JMS I XIOTG
   DCA REGC
   TAD REGB

5344    7340              /WAIT ABOUT 15 MS FOR REGISTER
5345    4427              /NUMBER NOT FOUND
5346    5040              /UPDATE COMPARE REGISTER
5347    1416              /TEST FOR NEXT COUNTER PULSE
5348    1444              /CHECK NON-ERROR HANDLER
5349    4472              /ERROR! COUNTER FAILED
5341    4493              /TST174 ERROR MESSAGE
5342    4174              /SCOPE LOOP

/ DOES COUNTER REALLY COUNT ?
/ RATE 4, MODE 1
/ TST175: CLA CLL CHA          /AC TO 7777
   JMS I XIOTC                /IOT 6133, CLAB
   DCA REGA
   TAD K0400
   TAD K1000
   JMS I XIOTP1
   JMS I XIOTE
   JMP I1
   CLA CLL
   JMS I XIOTG
   DCA REGC
   TAD REGB

```

PAL10

PAGE 1041

V142 22 OCT 73 9195

3360 3070 DCA SEND
3361 4433 JMS I X10TR
3362 7041 CIA/COMPARE TO THIS REGISTER
/ARE THEY THE SAME YET ?
/YES, TEST NEXT NUMBER
TAD REGB
SNA CLA
JMP T175A
ISE REGC
JMP T175B
ISE REGA
JMP T175A1
JMP T175B1
JMS I NERROR
JMS I ERROR
4175
TST175/DOES COUNTER REALLY COUNT ?
/RATE 2, MODE 23377 7340
3400 4427
3401 3040
3402 1015
3403 1143
3404 4426
3405 7300
3406 3042
3407 1041
3410 3070
3411 4433
3412 7041
3413 1041
3414 7650
3415 5221
3416 2042
3417 5211
3420 5224
3421 2041
3422 5205
3423 4472
3424 4473
3425 4470
3426 3397/SAVE OUTPUT FOR ERROR PRINTER
/IOT 6137, CLCA
/AC TO 7777
/IOT 6133, CLAB
TAD K0200
TAD K2000
JMS I X10TP1
CLL
DCA REGC
TAD REGB
DCA SEND
JMS I X10TR
CIA
TAD REGB
SNA CLA
JMP T176A
ISE REGC
JMP T176B
ISE REGA
JMP T176A1
JMP T176B1
JMS I NERROR
JMS I ERROR
4176
TST176/DOES COUNTER REALLY COUNT ?
/RATE 4, MODE 23427 7340
3430 4427
3431 3040
3432 1116
3433 1143
3434 4426
3435 7300
3436 3042/AC TO 7777
/IOT 6133, CLAB
/GET RATE + MODE
/IOT 6132, CLOSE
/CLEAR THE AC AND LINK
DCA REGC

3440 3070 DCA SEND /IOT 6137, CLCA
 3441 4433 JMS I XIOTR
 3442 7041 CIA
 3443 1041 TAD REGB /COMPARE TO THIS REGISTER
 3444 7050 SNA CLA /ARE THEY THE SAME YET ?
 3445 5251 JMP T177A /YES, TEST NEXT NUMBER
 3446 2042 ISE REGC
 3447 5241 JMP T177B /WAIT ABOUT 15 MS FOR REGISTER
 3450 5234 JMP T177A1 /NUMBER NOT FOUND
 3451 2041 ISZ REGB /UPDATE COMPARE REGISTER
 3452 5235 JMP T177B1 /TEST FOR NEXT COUNTER PULSE
 3453 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
 3454 4473 JMS I ERROR /ERROR! COUNTER FAILED
 3455 4177 TST177 /TST177 ERROR MESSAGE
 3456 4177 /SCOPE LOOP

/DOES COUNTER REALLY COUNT ?
 /RATE 4, MODE 3

TST200, CLA CLL CHA /AC TO 7777
 JMS I XIOTG /IOT 6133, CLAB
 DCA REGA
 TAD K0400 /GET RATE + MODE
 TAD K3000 /IOT 6132, CLOE
 JMS I XIOTP1 /CLEAR THE AC AND LINK
 CLL CLL
 DCA REBC
 TAD REGB
 DCA SEND
 JMS I XIOTR /SAVE OUTPUT FOR ERROR PRINTER
 /IOT 6137, CLCA
 CIA
 TAD REGB /COMPARE TO THIS REGISTER
 SNA CLA /NUMBER NOT FOUND
 JMP T200A1 /UPDATE COMPARE REGISTER
 ISE REGC /TEST FOR NEXT COUNTER PULSE
 JMP T200B1 /CHECK NON-ERROR HANDLER
 JMS I NERROR /ERROR! MODE 3, COUNTER FAILED
 T200A1, JMS I ERROR /TST200 ERROR MESSAGE
 4200 /SCOPE LOOP

/DO IOT'S AFFECT AC ?

TST201, CLA CLL CHA /AC TO 7777
 JMS I XIOTG /IOT 6133, CLAB
 DCA REGA /PASS COUNT 1
 6007 /CAF OR CLEAR THE WORLD
 TAD K1000 /GET ENABLES
 TAD K0200 /IOT 6132, CLOE
 JMS I XIOTR /IOT 6131, CLSK

3460 4427 JMS I XIOTR
 3461 3040 CIA
 3462 1116 TAD REGA /COMPARE TO THIS REGISTER
 3463 1120 TAD K3000 /NUMBER NOT FOUND
 3464 4426 JMS I XIOTP1 /UPDATE COMPARE REGISTER
 3465 7300 CLL /TEST FOR NEXT COUNTER PULSE
 3466 3042 DCA REBC
 3467 1041 TAD REGB /CHECK NON-ERROR HANDLER
 3468 3090 DCA SEND /TEST FOR NEXT COUNTER PULSE
 3469 4493 JMS I XIOTR /CLEAR THE AC AND LINK
 3470 7341 CIA
 3471 1041 TAD REGB /TEST FOR NEXT COUNTER PULSE
 3472 7341 SNA CLA /CHECK NON-ERROR HANDLER
 3473 1041 JMS I XIOTR /CLEAR THE AC AND LINK
 3474 7650 CIA
 3475 5501 TAD REGC /TEST FOR NEXT COUNTER PULSE
 3476 2042 JMP T200B /CLEAR THE AC AND LINK
 3477 5291 ISE REGC /TEST FOR NEXT COUNTER PULSE
 3500 5304 JMP T200A1 /CLEAR THE AC AND LINK
 3501 2044 ISE REGC /TEST FOR NEXT COUNTER PULSE
 3502 5265 JMP T200B1 /CLEAR THE AC AND LINK
 3503 4472 T200A1, JMS I NERROR /ERROR! MODE 3, COUNTER FAILED
 3504 4473 JMS I ERROR /TST200 ERROR MESSAGE
 3505 4200 4200 /SCOPE LOOP

TST200, CLA CLL CHA /AC TO 7777
 JMS I XIOTG /IOT 6133, CLAB
 DCA REGA /PASS COUNT 1
 6007 /CAF OR CLEAR THE WORLD
 TAD K1000 /GET ENABLES
 TAD K0200 /IOT 6132, CLOE
 JMS I XIOTR /IOT 6131, CLSK

• 0410 V142 22 OCT 73 9195

PAGE 1 OF 3
/WAIT FOR COUNTER TO GET CLEARED

3517 5316 JMP 1=1 CLA CLL CMĀ /CLEAR AC AND LINK
3520 7340 JMS 1 XI0T6 /SAVE OUTPUT FOR ERROR PRINTER
3521 4423 T201B, CLA CLL /GET AC NUMBER
3522 7300 DCA SEND /GET AC ALL 0/8 ?
3523 3970 TAD REGB /GET AC NUMBER
3524 1041 JMS 1 XI0TJ /GET AC NUMBER
3525 4432 CLA CLL /GET AC ALL 0/8 ?
3526 7640 JMS 1 XI0TJ /HAS AC ALL 0/8 ?
3527 5351 JMP T201A
3530 1041 TAD REGB /GET AC NUMBER
3531 4433 JMS 1 XI0TR /GET AC NUMBER
3532 7649 CLA CLL /HAS AC ALL 0/8 ?
3533 5351 JMP T201A
3534 1041 TAD REGB /GET AC NUMBER
3535 4430 JMS 1 XI0TJ /GET AC NUMBER
3536 7640 CLA CLL /HAS AC ALL 0/8 ?
3537 5351 JMP T201A
3538 1041 TAD REGB /GET AC NUMBER
3539 4431 JMS 1 XI0TJ /GET AC NUMBER
3540 7640 CLA CLL /HAS AC ALL 0/8 ?
3541 5351 JMP T201A
3542 4424 JMS 1 XI0TJ /HAS FLAG STILL SET ?
3543 5351 TSE REGB /UPDATE PASS COUNTER
3544 4424 JMS 1 XI0TJ /TEST TOTAL AGAIN
3545 5324 JMP T201B /CHECK NON-ERROR HANDLER
3546 2941 JMS 1 XI0TJ /ERROR INPUT 4 FAILED
3547 5322 T201A, /TST201 ERROR MESSAGE
3548 4492 JMS 1 XI0TJ /SCOPE LOOP
3549 4493 T201A, /
3550 4493 T201A, /
3551 4493 T201A, /
3552 3261 JMS 1 XI0TJ /
3553 3507 TST201 /
3554 4570 JMS 1 XI0TJ /TYPE PASS COMPLETE
3555 3463 JHP 1 XOK2P /CONTINUE TESTING
/0008 INPUT 4 CAUSE INT. RST:

3556 7399 CLA CLL /LOAD LOOP COUNTER
3557 1172 TAD K740# /AC TO 0004
3558 3897 DCA LOOP /GET ENABLES
3559 7398 TST202, CLA CLL CMĀ /AC TO 7777
3560 3848 DCA REGA
3561 7397 CLA CLL 1AC RTL /AC TO 0004
3562 3849 TAD K0B10# /GET ENABLES
3563 7397 JMS 1 XI0TP /AC TO 0002
3564 1142 JMS 1 XI0TP /AC TO 0002
3565 4425 JMS 1 XI0TP /AC TO 0002
3566 4496 JMS 1 XI0TP /AC TO 0002
3567 4472 JMS 1 XI0TP /AC TO 0002
3568 4473 JMS 1 XI0TP /AC TO 0002
3569 1092 TST202 /AC TO 0002
3570 3561 TST202 /AC TO 0002
/0008 INPUT 2 CAUSE INT. RST:

TST203, CLA CLL CMĀ /AC TO 7777
DCA REGA
CLA CLL CMĀ RTL /AC TO 0002
TAD K0B10# /GET ENABLES

3573 7340
3574 3040
3575 7326
3576 1142

V142
2230CT-73

PAGE 1044

9195

/DOES INPUT 1 CAUSE INT. RQST?

TST204:

JHS 1 XIOTP
JMS 1 XPIGO2
JMS 1 NERROR
JMS 1 ERROR
1603
TST203
/SCOPE LOOP

JHS 1 XIOTP
JMS 1 XPIGO2
JMS 1 NERROR
JMS 1 ERROR
1604
TST204
/SCOPE LOOP

/DOES INPUT 4 RQST? LAST 1

TST205:

CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL IAC RTL /AC TO 0004
TAD K0010 /GET ENABLES
JHS 1 XIOTP
JHS 1 XPIGO1
JMP T205A
ISE REGB
JHP 1 PI
JHS 1 XPIGO2
JHS 1 NERROR
T205A,
1605
TST205
/SCOPE LOOP

CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL IAC RTL /AC TO 0004
TAD K0010 /GET ENABLES
JHS 1 XIOTP
JHS 1 XPIGO1
JMP T205A
ISE REGB
JHP 1 PI
JHS 1 XPIGO2
JHS 1 NERROR
T205A,
1605
TST205
/SCOPE LOOP

/DOES INPUT 2 RQST? LAST 1

TST206:

CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL IAC RTL /AC TO 0002
TAD K0010 /GET ENABLES
JHS 1 XIOTP
JHS 1 XPIGO1
JMP T206A
ISE REGB
JHP 1 PI
JHS 1 XPIGO2
JHS 1 NERROR
T206A,
1606
TST206
/SCOPE LOOP

CLA CLL CMA /AC TO 7777
DCA REGA
CLA CLL IAC RTL /AC TO 0002
TAD K0010 /GET ENABLES
JHS 1 XIOTP
JHS 1 XPIGO1
JMP T206A
ISE REGB
JHP 1 PI
JHS 1 XPIGO2
JHS 1 NERROR
T206A,
1606
TST206
/SCOPE LOOP

/DOES INPUT 1 RQST? LAST 1

8A110 V142 22890CT-73 9155 PAGE 1043

7340
3653 TST207, CLA CLL CMĀ /AC TO 7777
DCA REGA
CLA CLL CMĀ RAL /AC TO 0001
TAD K0010 CLOE
JMS ! XIOTP //10T 6132, CLOE
JMS ! XPIG01 //GO TO P1, P1 EXPECTED
JMP T207A //NO RQST, FOUND
JSZ REGB //UPDATE COUNTER
JMP ! P1 //WAIT 15 MS
JMS ! XPIG02 //GO TO P1, P1 EXPECTED
JMS ! NERROR //CHECK NON-ERROR HANDLER
JMS ! ERROR //ERROR INPUT 1 FAILED
1607 //TST207 ERROR MESSAGE
TST207 //SCOPE LOOP

//DOES INPUTS 4,2,1 WITHOUT BIT 8 ?

7340
3671 TST210, CLA CLL CMĀ /AC TO 7777
DCA REGA
CLA CLL !AC RTR /AC TO 4000
TAD K0007
TAD K0020
TAD K0020
JMS ! XIOTP //10T 6132, CLOE
JMS ! XPIG01 //GO TO P1, NO P1 EXPECTED
JMS ! NERROR //CHECK NON-ERROR HANDLER
JMS ! ERROR //ERROR INPUT 1 FAILED
1210 //TST210 ERROR MESSAGE
TST210 //SCOPE LOOP

//DOES INPUT 4 CAUSE SKIP ?

7340
3705 TST211, CLA CLL CMĀ /AC TO 7777
DCA REGA
TAD KT1CPS
DCA REGF
CLA CLL !AC RTL /AC TO 0004
JMS ! XIOTP //10T 6132, CLOE
JMS ! XIOT //10T 6131, CLSK
JMS ! SKPWAT //LET'S WAIT FOR A FLAG
JMS ! NERROR //CHECK NON-ERROR HANDLER
JMS ! ERROR //ERROR INPUT 4 OR SKIP FAILED
0611 //TST211 ERROR MESSAGE
TST211 //SCOPE LOOP

//DOES INPUT 2 CAUSE SKIP ?

7340
3720 TST212, CLA CLL CMĀ /AC TO 7777
DCA REGA
TAD KT1CPS
DCA REGF
CLA CLL CMĀ RTL /AC TO 0002
JMS ! XIOTP //10T 6132, CLOE
JMS ! XIOT //10T 6131, CLSK
JMS ! SKPWAT //LET'S WAIT FOR A FLAG

10	V142	22 OCT 73	9135	JMS 1 NERRR /CHECK NON-ERROR HANDLER JMS 1 ERROR /ERROR! INPUT 2 OR SKIP FAILED 0612 /TST212 ERROR MESSAGE TST212 /SCOPE LOOP
----	------	-----------	------	--

/DOES INPUT 1 CAUSE SKIP ?

3730	4492	JMS 1 NERRR /CHECK NON-ERROR HANDLER JMS 1 ERROR /ERROR! INPUT 2 OR SKIP FAILED 0612 /TST212 ERROR MESSAGE TST212 /SCOPE LOOP
3731	4493	
3732	0612	
3733	3720	

/TST213, CLA CLL CMA /AC TO 7777

DCA REGA
TAD K11CPS
DCA REGF
CLL IAC
CLA CLL IAC /AC TO 00001
JMS 1 XIOTP /IOT 6132, CLOE
JMS 1 XIOTE /IOT 6134, CLSK
JMS 1 SKPWAT /LET'S WAIT FOR FLAG
JMS 1 NERRR /CHECK NON-ERROR HANDLER
JMS 1ERRQR /ERROR! INPUT 1 OR SKIP FAILED
0613 /TST213 ERROR MESSAGE
TST213 /SCOPE LOOP

/DOES INPUT 4 RQST, THEN SKIP AND VICE-VERSA ?

3740	7340	JMS 1 NERRR /CHECK NON-ERROR HANDLER JMS 1 ERROR /ERROR! INPUT 2 OR SKIP FAILED 0612 /TST212 ERROR MESSAGE TST212 /SCOPE LOOP
3741	3840	
3742	1113	
3743	3845	
3744	4424	
3745	4446	
3746	4492	
3747	4473	
3748	0613	
3749	3734	

/TST214, CLA CLL CMA /AC TO 7777

DCA REGA
CLA CLL IAC RTL /AC TO 00004
TAD K0010 /GET ENABLES
JMS 1 XIOTP /IOT 6132, CLOE
JMS 1 XIOTE /IOT 6134, CLSK
JMP *
JMS 1 XPIG01 /GO TO PI, PI EXPECTED
JMP T214A /NO RQST, FOUND
JMS 1 XIOTE /IOT 6131, CLSK

JMP *
JMS 1 NERRR /CHECK NON-ERROR HANDLER
JMS 1 ERROR /ERROR! INPUT 4 SKIP OR INT, RQST, FAILED
T214A, 1614 /TST214 ERROR FAILED
TST214 /SCOPE LOOP

/DOES INPUT 2 SKIP THEN INT, RQST, AND VICE-VERSA ?

3750	3750	JMS 1 NERRR /CHECK NON-ERROR HANDLER JMS 1 ERROR /ERROR! INPUT 2 OR SKIP FAILED 0612 /TST212 ERROR MESSAGE TST212 /SCOPE LOOP
3751	7307	
3752	7307	
3753	1142	
3754	4425	
3755	4424	
3756	5355	
3757	4447	
3758	5364	
3759	4424	
3760	9361	
3761	4424	
3762	9361	
3763	4492	
3764	4493	
3765	1614	
3766	3750	

/TST215, CLA CLL CMA /AC TO 7777

DCA REGA
CLA CLL IAC RAL /AC TO 00002
TAD K0010 /GET ENABLES
JMS 1 XIOTP /IOT 6132, CLOE
JMS 1 XIOTE /IOT 6134, CLSK
JMP *
JMS 1 XPIG01 /GO TO PI, PI EXPECTED
JMP XCRSS9
JMS 1 XIOTE /IOT 6131, CLSK

JMP *
JMS 1 NERRR /CHECK NON-ERROR HANDLER
JMS 1 ERROR /ERROR! INPUT 2 SKIP OR RQST, FAILED
T215A, 1615 /TST215 ERROR MESSAGE
TST215 /SCOPE LOOP

```

/ DOES INPUT 1 SKIP THEN INT. ROST, AND VICE-VERSA ?
/ TST216, CLA CLL CMĀ /AC TO 7777
  DCA REGA IAC
  CLA CLL IAC /AC TO 0001
  DCA REGA IAC /GET ENABLES
  TAD K0010 /IOT 6132, CLOSE
  JMS I XIOTP /IOT 6131, CLSK
  JMS I XIOTE /IOT 6131, CLSK
  JMP .=1 /GO TO PI: PI EXPECTED
  JMS I XIOTP /IOT 6131, CLSK
  JMS I XIOTE /IOT 6131, CLSK
  JMP .=1 /CHECK NON-ERROR HANDLER
  JMS I XIOTE /ERROR! INPUT 1 SKIP OR INT, ROST, FAILED
  T216A, 1616 /TST216 ERROR MESSAGE
  TST216 /SCOPE LOOP

/ DOES CAF CLEAR INPUT 4 INT. ROST, ?
/ TST217, CLA CLL CMĀ /AC TO 7777
  DCA CLL IAC RTL /AC TO 0004
  CLA CLL IAC RTL /AC TO 0004
  JMS I XIOTP /IOT 6132, CLOSE
  JMS I XIOTE /IOT 6131, CLSK
  JMP .=1 /WAIT FOR FIRST FLAG
  60007 /CAF OR CLEAR THE WORLD
  CLA CLL IAC RTL /AC TO 0004
  JMS I XIOTP /IOT 6132, CLOSE
  JMS I XIOTE /IOT 6131, CLSK
  JMP .=1 /WAIT FOR SECOND FLAG
  60007 /CAF OR CLEAR THE WORLD
  CLA CLL IAC RTL /IOT 6132, CLOSE
  JMS I XIOTP /IOT 6131, CLSK
  JMS I XIOTE /CHECK NON-ERROR HANDLER
  JMS I ERROR /ERROR! INPUT 4 SKIP OR ROST, FAILED
  0217 /TST217 ERROR MESSAGE
  TST217 /SCOPE LOOP

/ DOES CAF CLEAR INPUT 2 ROST, ?
/ TST220, CLA CLL CMĀ /AC TO 7777
  DCA REGA
  CLA CLL IAC RAL /AC TO 0002
  JMS I XIOTP /IOT 6132, CLOSE
  JMS I XIOTE /IOT 6131, CLSK
  JMP .=1 /WAIT FOR FIRST FLAG
  60007 /CAF OR CLEAR THE WORLD
  CLA CLL IAC RAL /AC TO 0002
  JMS I XIOTP /IOT 6132, CLOSE
  JMS I XIOTE /IOT 6131, CLSK
  JMP .=1 /WAIT FOR SECOND FLAG
  60007 /CAF OR CLEAR THE WORLD
  CLA CLL IAC RAL /AC TO 0002
  JMS I XIOTP /IOT 6132, CLOSE
  JMS I XIOTE /IOT 6131, CLSK
  JMP .=1 /WAIT FOR SECOND FLAG
  60007 /CAF OR CLEAR THE WORLD

```

10

V142

22 OCT 73

9155

PAGE 1-48

4064 7305 CLA CLL IAC RAL /ACT TO 0002
 4065 4425 JHS I XIOTP /IOT 6132, CLOE
 4066 4424 JHS I XIOTE /IOT 6131, CLSK
 4067 4472 JHS I NERROR /CHECK NON-ERROR HANDLER
 4070 4473 JHS I ERROR /ERROR! INPUT 2 SKIP OR POST!, FAILED
 0220 /TST220 ERROR MESSAGE
 4071 0220 TST220
 4072 /SCOPE LOOP

/DOES CLA CLEAR INPUT 3 POST? ?

4073 7340 TST221, CLA CLL CHA /AC TO 7777
 4074 3040 DCA REGA /AC TO 0001
 4075 7301 CLA CLL IAC /AC TO 0001
 4076 4425 JHS I XIOTP /IOT 6132, CLOE
 4077 4424 JHS I XIOTE /IOT 6131, CLSK
 4100 5297 JMP I=1 /WAIT FOR FIRST FLAG
 4101 6007 4807 /CAF OR CLEAR THE WORLD
 4102 7301 CLA CLL IAC /AC TO 0001
 4103 4425 JHS I XIOTP /IOT 6132, CLOE
 4104 4424 JHS I XIOTE /IOT 6131, CLSK
 4105 5304 JMP I=1 /WAIT FOR SECOND FLAG
 4106 6007 6807 /CAF OR CLEAR THE WORLD
 4107 7301 CLA CLL IAC /AC TO 0001
 4110 4425 JHS I XIOTP /IOT 6132, CLOE
 4111 4424 JHS I XIOTE /IOT 6131, CLSK
 4112 4472 JHS I NERROR /CHECK NON-ERROR HANDLER
 4113 4473 JHS I ERROR /ERROR! INPUT 1 SKIP OR POST!, FAILED
 0221 /TST221 ERROR MESSAGE
 4114 0221 TST221
 4115 4093 /SCOPE LOOP

/DOES CLSA READ POST, INPUT 4 ?

4116 7340 TST222, CLA CLL CHA /AC TO 7777
 4117 3040 DCA REGA /AC TO 0004
 4120 7307 CLA CLL IAC RTL /AC TO 0004
 4121 4425 JHS I XIOTP /IOT 6132, CLOE
 4122 4424 JHS I XIOTE /IOT 6131, CLSK
 4123 5322 JMP I=1 /WAIT FOR FLAG
 4124 7040 CHA /AC TO 7773
 4125 4431 JHS I XIOTI /IOT 6135, CLSA
 4126 4496 JHS I XSNDRY /CHECK SEND AND RECEV REGISTERS
 4127 4472 JHS I NERROR /CHECK NON-ERROR HANDLER
 4130 4473 JHS I ERROR /ERROR! CLSA OR INPUT 4 FAILED
 5222 /TST222 ERROR MESSAGE
 737222 /SCOPE LOOP

/DOES CLSA READ POST, INPUT 2 ?

4133 7340 TST223, CLA CLL CHA /AC TO 7777
 4134 3040 DCA REGA /AC TO 0002
 4135 7305 CLA CLL IAC RAL /AC TO 0002
 4136 4425 JHS I XIOTP /IOT 6132, CLOE
 4137 4424 JHS I XIOTE /IOT 6131, CLSK
 4140 5337 JMP I=1 /WAIT FOR FLAG
 4141 7040 CHA /AC TO 7775

PAL10 V142 22 OCT 73 9195 PAGE 1+49

4142 4481 JMS ! XIOTI /1OT 6135! CLSA
4143 4456 JMS ! XSDR^V /CHECK SEND AND RECEV REGISTERS
4144 4472 JMS ! NERROR /CHECK NON-ERROR HANDLER
4145 4473 JMS ! ERROR /ERROR! CLSA OR INPUT 1 FAILED
4146 5223 5223 /TST223 ERROR MESSAGE
4147 4133 /SCOPE LOOP

/DOES CLSA READ ROST: INPUT 1 ?

4150 7349 TST224, CLA CLL GMÄ /AC TO 7777
4151 3049 DCA REGA
4152 7301 CLL IAC /AC TO 0001
4153 4425 JMS ! XIOTP /1OT 6132! CLOSE
4154 4424 JMS ! XIOTE /1OT 6131! CLSK
4155 5354 JMP 1-A /WAIT FOR FLAG
4156 7049 CHA /AC TO 7776
4157 4431 JMS ! XIOTI /1OT 6135! CLSA
4158 4456 JMS ! XSDR^V /CHECK SEND AND RECEV REGISTERS
4159 4492 JMS ! NERROR /CHECK NON-ERROR HANDLER
4160 4473 JMS ! ERROR /ERROR! CLSA OR INPUT 1 FAILED
4161 4473 5224 /TST224 ERROR MESSAGE
4162 4473 5224 /SCOPE LOOP

/DOES CLSA CLEAR INPUT 4 ROST: ?

4164 TST225, CLA CLL GMÄ /AC TO 7777
4165 7349 CLA CLL IAC RTL /AC TO 0004
4166 3049 DCA REGA
4167 7307 JMS ! XIOTP /1OT 6132! CLOSE
4168 4426 JMS ! XIOTE /1OT 6131! CLSK
4169 4424 JMP 1-A /WAIT FOR FIRST FLAG
4170 5391 JMS ! XIOTI /1OT 6135! CLSA
4171 4424 JMS ! XIOTE /1OT 6131! CLSK
4172 5391 JMP 1-A /WAIT FOR SECOND FLAG
4173 4431 JMS ! XIOTI /1OT 6135! CLSA
4174 4424 JMS ! XIOTE /1OT 6131! CLSK
4175 5374 JMP 1-A /WAIT FOR FIRST FLAG
4176 4431 JMS ! XIOTI /1OT 6135! CLSA
4177 4424 JMS ! XIOTE /1OT 6131! CLSK
4178 4492 JMS ! NERROR /CHECK NON-ERROR HANDLER
4179 4493 JMS ! ERROR /ERROR! CLSA OR INPUT 1 FAILED
4180 4492 0225 /TST225 ERROR MESSAGE
4181 4493 0225 /SCOPE LOOP

/DOES CLSA CLEAR INPUT 2 ROST: ?

TST226, CLA CLL GMÄ /AC TO 7777
4182 7349 CLA CLL IAC RAL /AC TO 0002
4183 5525 DCA REGA
4184 7305 JMS ! XIOTP /1OT 6132! CLOSE
4185 4425 JMS ! XIOTE /1OT 6131! CLSK
4186 4424 JMP 1-A /WAIT FOR FIRST FLAG
4187 5210 JMS ! XIOTI /1OT 6135! CLSA
4188 4424 JMS ! XIOTE /1OT 6131! CLSK
4189 5210 JMP 1-A /WAIT FOR SECOND FLAG
4190 4431 JMS ! XIOTI /1OT 6135! CLSA
4191 4424 JMS ! XIOTE /1OT 6131! CLSK
4192 4424 4202 JMS ! NERROR /CHECK NON-ERROR HANDLER
4193 4492 4202 JMS ! ERROR /ERROR! CLSA OR INPUT 1 FAILED
4194 4493 4202 /TST226 ERROR MESSAGE
4195 4431 4202 /SCOPE LOOP

4203 4492 4202
4204 7349 4202
4205 5525 4202
4206 7305 4202
4207 4425 4202
4208 4424 4202
4209 5210 4202
4210 4424 4202
4211 5210 4202
4212 4431 4202
4213 4424 4202
4214 5210 4202
4215 4431 4202
4216 4424 4202
4217 4492 4202

10

PAGE 1-50

V142 22 OCT 73 9195 /DOES CLSA CLEAR INPUT 4 RSTY? ?
 4220 4493 JHS 1 ERROR /ERRORI CLSA OR INPUT 2 FAILED
 4221 0226 0226 /TST226 ERROR MESSAGE
 4222 4204 /SCOPE LOOP

```

  /TST227, CLA CLL CMA /AC TO 7777
  DCA REGA
  CLA CLL IAC /AC TO 0001
  JMS 1 XIOTP /IOT 6132, CLOE
  JMS 1 XIOTE /IOT 6131, CLSK
  JMP 1* /WAIT FOR FIRST FLAG
  JMS 1 XIOTI /IOT 6135, CLSA
  JMS 1 XIOTE /IOT 6134, CLSK
  JMP 1* /WAIT FOR SECOND FLAG
  JMS 1 XIOTI /IOT 6135, CLSA
  JMS 1 XIOTE /IOT 6131, CLSK
  JMS 1 NERROR /CHECK NON-ERROR HANDLER
  JMS 1 ERROR /ERRORI CLSA OR INPUT 1 FAILED
  0227 /TST227 ERROR MESSAGE
  4223 /SCOPE LOOP
  
```

/DOES CLSA READ INPUT 4,2,1 ?

```

  /TST230, CLA CLL CMA /AC TO 7777
  DCA REGA
  TAD K0007 /GET ENABLES
  JMS 1 XIOTP /IOT 6132, CLOE
  NOP
  ISZ REGB /WAIT FOR ALL
  JMP 1*2 /IOT 6131, CLOE
  JMS 1 XIOTE /WAIT FOR FLAGS
  JMP 1* /AC TO 7777
  CLA CLL CMA
  JMS 1 XIOTI /IOT 6135, CLSA
  JMS 1 XSNDRV /CHECK SEND AND RECEV REGISTERS
  SKP CLA
  JMP T230A /ERROR, STATUS REGISTER
  DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
  CLA CLL CMA /AC TO 7777
  JMS 1 XIOTI /IOT 6135, CLSA
  SNA CLA /WAS SYATU ALL 01S ?
  JMS 1 NERROR /CHECK NON-ERROR HANDLER
  JMS 1 ERROR /ERRORI CLSA OR INPUTS 1,2,3 FAILED
  T230A, 2650 /TST230 ERROR MESSAGE
  4241 /SCOPE LOOP
  
```

/DOES INPUT 4 CLEAR BIT 7 ?

```

  4270 7340
  4271 3040
  4272 7307
  4273 3070
  4274 1070
  4275 1140
  
```

```

  /TST231, CLA CLL CMA
  DCA REGA
  CLA CLL IAC RTL /AC TO 0004
  DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
  TAD SEND
  TAD K0020 /GET ENABLES
  
```

PAGE	142	22 OCT 73	9195	PAGE 1-51
4276	4426	JMS I X10TP1	/IOT 6132! CLOSE	
4277	4424	JMS I X10TE	/IOT 6131! CLSK	
4300	5277	JMP ^{I=1}	/WAIT FOR FLAG	
4301	7340	CLA CLL CMĀ	/AC TO 7777	
4302	4430	JMS I X10TH	/IOT 6134! CLEN	
4303	4456	JMS I XSNDĀV	/CHECK SEND AND RECEV REGISTERS	
4304	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER	
4305	4473	JMS I ERROR	/ERROR BIT 7 OR INPUT 4 FAILED	
4306	4631	4631	/TST231 ERROR MESSAGE	
4307	4270	TST231	/SCOPE LOOP	
<i>// DOES INPUT 2 CLEAR BIT 7 ?</i>				
4310	7340	TST232, CLA CLL CMĀ		
4311	3040	DCA REGA		
4312	7305	CLA CLL IAĒ RAL	/AC TO 00002	
4313	3090	DCA SEND	/SAVE OUTPUT FOR ERROR PRINTER	
4314	1070	TAD SEND		
4315	1140	TAD K0020		
4316	4426	JMS I X10TP1	/IOT 6132! CLOSE	
4317	4424	JMS I X10TE	/IOT 6131! CLSK	
4320	5317	JMP ^{I=1}	/WAIT FOR FLAG	
4321	7340	CLA CLL CMĀ		
4322	4430	JMS I X10TH	/IOT 6134! CLEN	
4323	4456	JMS I XSNDĀV	/CHECK SEND AND RECEV REGISTERS	
4324	4492	JMS I NERROR	/CHECK NON-ERROR HANDLER	
4325	4493	JMS I ERROR	/ERROR BIT 7 OR INPUT 2 FAILED	
4326	4632	4632	/TST232 ERROR MESSAGE	
4327	4310	TST232	/SCOPE LOOP	
<i>// DOES INPUT 1 CLEAR BIT 7 ?</i>				
4330	7340	TST233, CLA CLL CMĀ	/AC TO 7777	
4331	3040	DCA REGA		
4332	7301	CLA CLL IAĒ	/AC TO 0001	
4333	3090	DCA SEND	/SAVE OUTPUT FOR ERROR PRINTER	
4334	1070	TAD SEND		
4335	1140	TAD K0020		
4336	4426	JMS I X10TP1	/IOT 6132! CLOSE	
4337	4424	JMS I X10TE	/IOT 6131! CLSK	
4340	5337	JMP ^{I=1}	/WAIT FOR FLAG	
4341	7340	CLA CLL CMĀ	/AC TO 7777	
4342	4430	JMS I X10TH	/IOT 6134! CLEN	
4343	4496	JMS I XSNDĀV	/CHECK SEND AND RECEV REGISTERS	
4344	4472	JMS I NERROR	/CHECK NON-ERROR HANDLER	
4345	4493	JMS I ERROR	/ERROR BIT 7 OR INPUT 1 FAILED	
4346	4633	4633	/TST233 ERROR MESSAGE	
4347	4330	TST233	/SCOPE LOOP	
<i>// DOES INPUT 4,2,1 GENERATE CLR CNT ?</i>				
<i>// MODE 3, RATE 0</i>				
4350	7340	TST234, CLA CLL CMĀ	/AC TO 7777	
4351	3040	DCA REGA		
4352	1016	TAD K2525	/GET AC NUMBER	

```

4353 4427 JMS I XIOTG /IOT 6133! CLAB
4354 7307 CLA CLL IAC RTL /AC TO 0004
4355 1120 TAD K3000 /GET ENABLES
4356 4426 JMS I XIOTF1 /IOT 6132! CLOE
4357 4424 JMS I XIOTE /IOT 6131! CLSK
4358 5397 JMP I14 /WAIT FOR FLAG
4361 7300 CLA CLL
4362 3090 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
4363 7340 CLA CLL CMĀ
4364 4433 JMS I XIOTR /IOT 6137! CLCA
4365 7650 SNA CLA /WAS COUNTER ALL 0/S ?
4366 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
4367 4493 JMS I ERROR /ERROR CLR CNT FAILED
4370 4234 4234 /TST234 ERROR MESSAGE
4371 4350 TST234 /SCOPE LOOP

/DOES INPUT 4,2,1 CAUSE CLR CNT ?
/MODE 3, RATE 0
/TST235, CLA CLL CMĀ /AC TO 7777
DCA REGA
TAD K5252 /GET AC NUMBER
JMS I XIOTG /IOT 6133! CLAB
CLL CLL IAC RAL /AC TO 0002
TAD K3000 /GET ENABLES
JMS I XIOTF1 /IOT 6132! CLOE
JMS I XIOTE /IOT 6131! CLSK
JMP I14 /WAIT FOR FLAG
CLA CLL
DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
CLA CLL CMĀ
JMS I XIOTR /IOT 6137! CLCA
SNA CLA /WAS COUNTER ALL 0/S ?
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR CLR CNT FAILED ?
4235 /TST235 ERROR MESSAGE
TST235 /SCOPE LOOP

```

```

4372 7340 JMS I XIOTG /IOT 6133! CLAB
4373 3040 DCA REGA /AC TO 7777
4374 1017 TAD K2325 /GET AC NUMBER
4375 4427 JMS I XIOTG /IOT 6133! CLAB
4376 7305 CLA CLL IAC RAL /AC TO 0002
4377 1120 TAD K3000 /GET ENABLES
4400 4426 JMS I XIOTF1 /IOT 6132! CLOE
4401 4424 JMS I XIOTE /IOT 6131! CLSK
4402 5201 JMP I14 /WAIT FOR FLAG
4403 7300 CLA CLL
4404 3090 DCA SEND /SAVE OUTPUT FOR ERROR PRINTER
4405 7340 CLA CLL CMĀ
4406 4433 JMS I XIOTR /IOT 6137! CLCA
4407 7650 SNA CLA /WAS COUNTER ALL 0/S ?
4410 4492 JMS I NERROR /CHECK NON-ERROR HANDLER
4411 4493 JMS I ERROR /ERROR CLR CNT FAILED ?
4412 4235 4235 /TST235 ERROR MESSAGE
4413 4392 TST235 /SCOPE LOOP

/DOES INPUT 4,2,1 TRANSFER COUNTER TO BUFFER ?
/TST236, CLA CLL CMĀ /AC TO 7777
DCA REGA
TAD K2325 /GET AC NUMBER
JMS I XIOTG /IOT 6133! CLAB
6257 CLA CLL IAC /CLEAR THE WCRLU
TAD K3000 /AC TO 0001
JMS I XIOTF1 /GET ENABLES
JMS I XIOTE /IOT 6132! CLOE
JMP I14 /WAIT FOR FLAG
CLA CLL CMĀ /AC TO 7777
JMS I XIOTJ /IOT 6136! CLBA
JMS I XSNDAY /CHECK SEND AND RECEV REGISTERS
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR COUNTER TO BUFFER FAILED

```

```

4414 7340 JMS I XIOTG /IOT 6133! CLAB
4415 3040 DCA REGA /AC TO 7777
4416 1016 TAD K2325 /GET AC NUMBER
4417 4427 JMS I XIOTG /IOT 6133! CLAB
-428 CDE,- /CLEAR THE WCRLU
4421 7301 CLA CLL IAC
4422 1120 TAD K3000 /AC TO 0001
4423 4426 JMS I XIOTF1 /GET ENABLES
4424 4424 JMS I XIOTE /IOT 6132! CLOE
4425 5224 JMP I14 /WAIT FOR FLAG
4426 7340 CLA CLL CMĀ /AC TO 7777
4427 4432 JMS I XIOTJ /IOT 6136! CLBA
4430 4496 JMS I XSNDAY /CHECK SEND AND RECEV REGISTERS
4431 4492 JMS I NERROR /CHECK NON-ERROR HANDLER
4432 4493 JMS I ERROR /ERROR COUNTER TO BUFFER FAILED

```

PAL10 V142
4433 3636
4434 4414

PAGE 1-53

/TST236 ERROR MESSAGE
/SCOPE LOOP

/DOES INPUT 4,2,1 TRANSFER COUNTER TO BUFFER ?

4435	7340	TST237, CLA CLL GMĀ DCA REGA	/AC TO 7777
4436	3040	TAD K52552	/GET AC NUMBER
4437	1017	JMS I XIOTG	/IOT 61331 CLAB
4438	4427	6007	/CAF OR CLEAR THE WORLD
4439	6007	CLA CLL IAC	/AC TO 0001
4440	7301	TAD K3000	/GET ENABLES
4441	1120	JMS I XIOTF1	/IOT 61321 CLOE
4442	7301	JMS I XIOTE	/IOT 61311 CLSK
4443	4426	JMP I A	/WAIT FOR FLAG
4444	4424	CLA CLL GMĀ	/AC TO 7777
4445	4424	JMS I XIOTJ	/IOT 61361 CLBA
4446	5245	JMS I XSNDRY	/CHECK SEND AND RECEV REGISTERS
4447	7340	JMS I NERRR	/CHECK NON-ERROR HANDLER
4448	4432	JMS I ERROR	/ERROR! COUNTER TO BUFFER FAILE
4449	4432	3637	/TST237 ERROR MESSAGE
4450	4432	TST237	/SCOPE LOOP

```

496 TST240, CLL CMĀ /AC TO 7777
497 DCA REGA /GET AC NUMBER
498 TAD K2525 /IOT 6133, CLAB
499 JMS I XIOTG /CAF OR CLEAR THE WORLD
500 6007 /AC TO 0004
501 CLA CLL IAC RTL /GET ENABLES
502 TAD K2000 /IOT 6432, CLOE
503 JMS I XIOTF1 /IOT 6131, CLSK
504 JMS I XIOTF2 /WAIT FOR FLAG
505 JMS I XIOTF3 /AC TO 7777
506 CLA CLL CMĀ /IOT 6137, CLCA
507 JMS I XIOTR /CHECK SEND AND RECEV REGISTERS
508 JMS I XSNDAY /CHECK NON-ERROR MESSAGE
509 JMS I NERROR /ERRORICLR CNT FAILED, MODE 2
510 JMS I ERROR /TST240 ERROR MESSAGE
511 4240 /SCOPE LOOP
512 4456

```

DOSES INPUT 4, 2, 1 CAUSE CLR CNT ?
HOOF 2, RATE 0

4477	7340	T5Y244:	CLA CLL CMA
5000	3040		DCA REGA
5001	1017		TAD K5252
5002	4427		JMS I X10TG
5003	6007		6007
5004	7305		CLA CLL IAC RAL
5005	1143		TAD K2000
		/GET AC NUMBER	/CAF OR CLEAR THE WORLD
		/AC TO 0002	/GET ENABLES

10 V142 22 OCT 73 9195

PAGE 1054

9195

```
4506 4426 JMS I XIOTP1 /IOT 6132! CLOE
4507 4424 JMS I XIOTE /IOT 6131! CLSK
4510 5307 JMP I1 /WAIT FOR FLAG
4511 7340 CLA CLL CMA /AC TO 7777
4512 4453 JMS I XIOTK /IOT 6137! CLCA
4513 4456 JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
4514 4472 JMS I NERROR /CHECK NON-ERROR HANDLER
4515 4473 JMS I ERROR /ERROR! CLR CNT FAILED, MODE 2
4516 4241 TST241 /TST241 ERROR MESSAGE
4517 4491 /SCOPE LOOP
```

/DOES COUNTER TRANSFER TO BUFFER ?
/MODE 2, RATE 0

```
TST242, CLA CLL CMA /AC TO 7777
DCA REBA
TAD K2525 /GET AC NUMBER
JMS I XIOTD /IOT 6133! CLAB
6007 /CAF OR CLEAR THE WORLD
CLA CLL IAC RTL
TAD K2000 /GET ENABLES
JMS I XIOTP1 /IOT 6132! CLOE
JMS I XIOTE /IOT 6131! CLSK
JMP I1 /WAIT FOR FLAG
CLA CLL CMA /AC TO 7777
JMS I XIOTJ /IOT 6136! CLBA
JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
JMS I NERROR /CHECK NON-ERROR HANDLER
JMS I ERROR /ERROR! COUNTER TO BUFFER FAILED
3642 /TST242 ERROR MESSAGE
TST242 /SCOPE LOOP
```

/DOES COUNTER TRANSFER TO BUFFER ?
/MODE 2, RATE 0

```
TST243, CLA CLL CMA /AC TO 7777
DCA REBA
TAD K5252 /GET AC NUMBER
JMS I XIOTG /IOT 6133! CLAB
6007 /CAF OR CLEAR THE WORLD
CLA CLL IAC RAL /AC TO 00002
TAD K2000 /GET ENABLES
JMS I XIOTP1 /IOT 6132! CLOE
JMS I XIOTE /IOT 6131! CLSK
JMP I1 /WAIT FOR FLAG
CLA CLL CMA /IOT 6136! CLBA
JMS I XIOTJ /CHECK SEND AND RECEV REGISTERS
JMS I XSNDRV /CHECK NON-ERROR HANDLER
JMS I NERROR /ERROR! COUNTER TO BUFFER FAILED
3643 /TST243 ERROR MESSAGE
TST243 /SCOPE LOOP
```

/DOES INPUT 4,2,1 AFFECT MODE 0 ?

```

4562 7340 TST244, CLA CLL CMĀ
4563 3040 DCA REGA
4564 1016 TAD K2525 /GET AC NUMBER
4565 4427 JMS ! XIOTG /CAF OR CLEAR THE WORLD
4566 6007 6007 /IOT 6133, CLAB
4567 7307 CLA CLL IAC RTL /AC TO 0004
4570 4426 JMS ! XIOTP1 /IOT 6132, CLOE
4571 4424 JMS ! XIOTE /IOT 6131, CLSK
4572 5391 JMP *1 /WAIT FOR FLAG
4573 7340 CLA CLL CMĀ /AC TO 7777
4574 4433 JMS ! XIOTJ /IOT 6137, CLCA
4575 4456 JMS ! XSNDRV /CHECK SEND AND RECEV REGISTERS
4576 4472 JMS ! NERROR /CHECK NON-ERROR HANDLER
4577 4493 JMS ! ERROR /ERROR! MODE 0 FAILED
4600 4244 4244 /TST 244 ERROR MESSAGE
4601 4262 TST244 /SCOPE Loop

```

```

//DOES INPUT 4,2,1 AFFECT MODE 0 ?
//TST245, CLA CLL CMĀ /AC TO 7777

```

```

4602 7340 3040 DCA REGA
4604 1017 TAD K2525 /GET AC NUMBER
4605 4427 JMS ! XIOTG /IOT 6133, CLAB
4606 7301 CLA CLL IAC /AC TO 0001
4607 4421 JMS ! XIOTP1 /IOT 6132, CLOE
4610 4424 JMS ! XIOTE /IOT 6131, CLSK
4611 5210 JMP *1 /WAIT FOR FLAG
4612 7340 CLA CLL CMĀ /AC TO 7777
4613 4432 JMS ! XIOTJ /IOT 6136, CLBA
4614 4436 JMS ! XSNDRV /CHECK SEND RECEV REGISTERS
4615 4492 JMS ! NERROR /CHECK NON-ERROR HANDLER
4616 4493 JMS ! ERROR /ERROR! MODE 0 FAILED
4617 3645 3645 /TST 245 ERROR MESSAGE
4620 4602 TST245 /SCOPE Loop

```

```

//DOES INPUT 4,2,1 AFFECT MODE 1 ?
//TST246, CLA CLL CMĀ /AC TO 7777

```

```

4621 7340 3040 DCA REGA
4622 1016 TAD K2525 /GET AC NUMBER
4623 4427 JMS ! XIOTG /IOT 6133, CLAB
4624 4427 6007 /SAVE OUTPUT FOR ERROR PRINTER
4625 6007 6007 /AC TO 0001
4626 3070 DCA SEND /GET ENABLES
4627 7301 CLA CLL IAC /IOT 6132, CLOE
4630 1144 TAD K100P /IOT 6131, CLOE
4631 4426 JMS ! XIOTP1 /WAIT FOR FLAG
4632 4424 JMS ! XIOTE /AC TO 7777
4633 5232 CLA CLL CMĀ /IOT 6136, CLBA
4634 7340 JMS ! XIOTJ /HAS BUFFER STILL ALL 0'S ?
4635 4432 SNA CLA /CHECK NON-ERROR HANDLER
4636 7650 JMS ! NERROR /ERROR! MODE 1 FAILED
4637 4492 JMS ! ERROR /TST 246 ERROR MESSAGE
4640 4473 4246 /SCOPE Loop
4641 4246 4621

```

```

    / DOES INPUT 4,2,1 AFFECT MODE 1 ?
    TST247, CLA CLL CMĀ /AC TO 7777
      DCA REGA
      TAD K5252 /GET AC NUMBER
      JMS I XIOTG /IOT 6133, CLAB
      CLL IAC RTL /AC TO 00004
      TAD K1000
      JMS I XIOTP1 /IOT 6132, CLOE
      JMS I XIOTE /IOT 6131, CLSK
      JMP I=1 /WAIT FOR FLAG
      CLA CLL CMĀ /AC TO 7777
      JMS I XIOTJ /IOT 6136, CLBA
      JMS I XSNDRV /CHECK SEND AND RECEV REGISTERS
      JMS I NERROR /CHECK NON-ERROR HANDLER
      JMS I ERROR /ERROR MODE 1 FAILED
      3647 /TST247 ERROR MESSAGE
      3642 /SCOPE LOOP

    / DOES CLSA READ INPUTS 4,2,1 ?
    TST250, CLA CLL CMĀ /AC TO 7777
      DCA REGA
      TAD K0007 /GET ENABLES
      JMS I XIOTP1 /IOT 6132, CLOE
      NOP
      ISZ REGB /WAIT FOR ALL
      JMP I=2 /IOT 6131, CLSK
      JMS I XIOTE /CLEAR THE AC AND LINK
      JMS I XIOTD /SAVE OUTPUT FOR ERROR PRINTER
      CLA CLL
      DCA SEND /AC TO 7777
      CLA CLL CMĀ /IOT 6130, CLBE
      JMS I XIOTI /IOT 6135, CLSA
      SNA CLA /WAS STATUS ALL 01'S ?
      JMS I NERROR /CHECK NON-ERROR HANDLER
      JMS I ERROR /ERROR INPUT 4,2,1 OR STATUS FAILED
      5250 /TEST250 ERROR MESSAGE
      TST250 /SCOPE LOOP

    / DOES CLSA READ STATUS REGISTER ?
    TST251, CLA CLL CMĀ /AC TO 7777
      DCA REGA
      TAD K0007 /GET ENABLES
      JMS I XIOTP1 /IOT 6132, CLOE
      NOP
      ISZ REGB /WAIT FOR FLAGS
      JMP I=2 /IOT 6131, CLSK
      JMS I XIOTE /AC TO 7777
      CLA CLL CMĀ /IOT 6135, CLSA
      JMS I XIOTI /AC TO 7777
      4706 7346
      4707 3040
      4710 1007
      4711 4425
      4712 7000
      4713 2041
      4714 5312
      4715 4424
      4716 5315
      4717 7340
      4720 4431

```

4721 4456 JMS ! XSNDRV /CHECK SEND AND RECEV REGISTERS
 4722 4472 JMS ! NERROR /CHECK NON-ERROR HANDLER
 4723 4473 JMS ! ERROR /ERROR! CLSA OR STATUS REGISTER
 4724 5251 5251 /TST251 ERROR MESSAGE
 4725 4706 TST251 /SCOPE LOOP

4726 7300 CLA CLL
 4727 2097 ISZ LOOP
 4730 5464 JMP ! XMITT /DO TEST 4096 TIMES
 4731 4570 JMS ! XPASS /TYPE PASS COMPLETE
 4732 5465 JMP ! XMITT /CONTINUE TESTING

/NON-ERROR HANDLER FOR PROGRAM

5000 *5000 /*
 5000 0000 0000 0000 /CAF OR CLEAR THE WORLD
 5001 6007 ISZ NERROR
 5002 2200 ISZ NERROR
 5003 2200 ISZ REGA
 5004 2040 ISZ REGA
 5005 5215 JMP OUT
 5006 4460 JMS ! XCCLREG
 5007 7604 LAS
 5010 0137 AND K0040
 5011 7640 SZA CLA
 5012 5215 JMP OUT
 5013 2200 ISZ NERROR
 5014 5600 JMP ! NERROR
 5015 1600 /*
 5016 3220 OUT,
 5017 5620 TAD ! NERROR
 DCA ERRO
 JMP ! ERRO

/ERROR HANDLER FOR PROGRAM
 /*
 ERRO, 0000 /CAF OR CLEAR THE WORLD
 5021 6007 6007
 5022 7604 LAS
 5023 7006 RTL
 5024 7700 SMA CLA
 5025 4503 JMS ! XSORT
 5026 4510 JMS ! XBELL
 5027 4460 JMS ! XCCLREG
 5030 2220 IGE ERRO
 5031 7604 LAS
 5032 0015 AND K0200
 5033 7650 SNA CLA
 5034 7402 HLT
 5035 7604 LAS
 5036 0013 AND K0100
 5037 7640 SZA CLA
 5040 5243 JMP IN
 5041 2220 ISE ERRO

/*
 /CHECK SWR2 FOR INH, PRINT
 /GET ERROR MESSAGE
 /RING BELL
 /*
 /CHECK SWR4 FOR INH, HALT
 /MONITOR ERROR HALT, READ TYPEOUT
 /AND REFERENCE LISTING
 /*
 /CHECK SWR5 FOR SCOPE LOOP

10	V142	2200C773	9195	PAGE 1-58
	5042	5620	/	/ENTER SCOPE LOOP
	5043	1620	IN,	TAD I ERRO
	5044	3200		DCA NERRO
	5045	5600		JMP I NERRO
	5046	0000	/BELL,	0000
	5047	7604		LAS
	5050	0116		AND K0400
	5051	7640		S2A CLA
	5052	5646		JMP I BELL
	5053	1006		TAD K0207
	5054	4507		JMS I XTYPE
	5055	5646		JMP I BELL
	5056	0000	/TYPE,	0000
	5057	6046		TLS
	5060	6041		TSF
	5061	5260		JMP I 04
	5062	7200		CLA
	5063	6042		TCF
	5064	5656		JMP I TYPE
	5065	0000	/CLRREG,	0000
	5066	7300		CLA CLL
	5067	3041		DCA REGB
	5070	3042		DCA REBC
	5071	3043		DCA RECD
	5072	3070		DCA SEND
	5073	3071		DCA RECEV
	5074	7604		LAS
	5075	0117		AND K0000
	5076	7650		SNA CLA
	5077	7340		CLA CLL CHA
	5100	3040		DCA REGA
	5101	5665		JMP I CLRREG
	5102	0000	/10TA,	0000
	5103	6131		6131
	5104	5702		JMP I 10TA
	5105	2302		152 10TA
	5106	5702		JMP I 10TA
	5107	0000	/10TB,	0000
	5110	5132		5132
	5111	5707		JMP I 10TB
	5112	2307		152 10TB
	5113	5707		JMP I 10TB
	5114	0000	/10TC,	0000
	5115	6133		6133
	5116	5714		JMP I 10TC
	5117	2314		152 10TC
	5120	5714		JMP I 10TC

/CLEAR THE AC AND LINK

/FIELD SERVICE CHANGE

/FIELD SERVICE CHANGE

AL1P	V142	22 OCT 73	9155	PAGE 1 OF 59
5121	0000	1070,	00000	/SAVE OUTPUT FOR ERROR PRINTER
5122	3070		DCA SEND	
5123	1070		TAD SEND	
5124	6130		6130	/FIELD SERVICE CHANGE
5125	5721	EHLT2,	JMP ! 107D	/SKIP TRAP, CLEE
5126	7402	/	HLT	
5127	0000	107E,	00000	/FIELD SERVICE CHANGE
5128	6131		6131	
5129	5727		JMP ! 107E	
5130	2327		1SZ ! 107E	
5131	5727		JMP ! 107E	
5132	5727		HLT	
5133	5727	/		
5134	0000	107F,	00000	/SAVE OUTPUT FOR ERROR PRINTER
5135	3070		DCA SEND	
5136	1070		TAD SEND	
5137	6132		6132	/FIELD SERVICE CHANGE
5138	5734	EHLT3,	JMP ! 107F	/SKIP TRAP, CLEE
5139	7402	/	HLT	
5140	0000	107F1,	00000	/FIELD SERVICE CHANGE
5141	6132		6132	
5142	5742	EHLT4,	JMP ! 107F1	
5143	7402	/	HLT	
5144	0000	107G,	00000	/SAVE OUTPUT FOR ERROR PRINTER
5145	3070		DCA SEND	
5146	1070		TAD SEND	
5147	6133		6133	/FIELD SERVICE CHANGE
5148	5746	EHLT5,	JMP ! 107G	/SKIP TRAP, CLAB
5149	7402	/	HLT	
5150	0000	107H,	00000	/FIELD SERVICE CHANGE
5151	3070		6134	
5152	6133		SKP	
5153	5746	EHLT6,	HLT	
5154	7402		DCA RECEV	
5155	0000		TAD RECEV	
5156	6134		JMP ! 107H	
5157	7410			
5158	7402			
5159	3071	EHLT7,		
5160	6135			
5161	5751			
5162	7402			
5163	0000	107I,	00000	/FIELD SERVICE CHANGE
5164	6135		6135	
5165	7410		SKP	
5166	7402	EHLT8,	HLT	
5167	3071		DCA RECEV	
5168	6136		TAD RECEV	
5169	5763		JMP ! 107I	
5170	7402			
5171	3071			
5200	0000			
5201	0000	107J,	00000	/FIELD SERVICE CHANGE
5202	6136		6136	
5203	7410		SKP	
5204	7402	EHLT10,	HLT	
5205	3071		DCA RECEV	

} STOPS.
5165 WAS TO 10

100

110

PAGE 1060

22 OCT 73 9155

V142 5205 1071 TAD RECEV
5206 5600 JMP I 10715207 0000 /107K,
5210 6137 0000 /FIELD SERVICE CHANGE
5211 7410 SKP
5212 7402 HLT 111,
5213 3071 DCA RECEV
5214 1091 TAD RECEV
5215 5607 JMP I 107K5216 0000 /SNDRV,
5217 7041 0000
5220 1070 TAD SEND
5221 7640 SZA CLA
5222 2216 ISZ SNDRV
5223 9616 JMP I SNDRV5224 0000 /RANDOM,
5225 1044 TAD REGE
5226 7004 RAL
5227 7430 S2L
5230 1410 TAD I 10
5231 3044 DCA REGE
5232 1044 TAD REGE
5233 5624 JMP I RANDOM
5234 0000 PIGOS 1 /CLEAR THE AC AND LINK
5235 7300 CLA CLL
5236 1254 TAD PRETS
5237 5902 DCA 2 /SET FOR PI RETURN
5240 6001 ION
5241 7300 CLA CLL
5242 1096 TAD KRZGC
5243 3042 DCA REGC
5244 4453 JMS I X10TR
5245 2042 ISZ REGC
5246 5245 JMP I *1
5247 2043 ISZ REGD
5250 5241 JMP I *7
5251 2234 ISZ PIGOS
5252 6002 IOF
5253 5634 JMP I PIGOS /DISABLE PROGRAM INTERRUPT5254 5232 /PRETS, PIRETS
PIGO1 0000 /CLEAR THE AC AND LINK
5255 2000 CLA CLL
5256 7300 TAD PRET1
5257 1267 DCA 2 /SET FOR PI RETURN
5260 3002 ION /ENABLE PROGRAM INTERRUPT
5261 6001 JMS I X10Z
5262 4484 SKP
5263 7410 PIRET1,
5264 2255 ISZ PIGO1
5265 6002 IOF /DISABLE PROGRAM INTERRUPT
5266 9685 JMP I PIGO1

```

/
5267 5264 PRET1, PIRET1
/ PIG02, 00000 CLA CLL /CLEAR THE AC AND LINK
5270 00000 TAD PRET2
5271 73000 DCA 2
5272 13001 ION
5273 30002 JMS ! X1012 /SET FOR PI RETURN
5274 60001 ION
5275 44054 JMS ! X1012 /WAIT
5276 22000 ISE2 PIG02
5277 60002 IOP
5278 56700 JMP ! PIG02
/
5301 5277 PRET2, PIRET2
/ PRET2, PIRET2
5302 00000 SYNC!, 00000 CLA CLL /CLEAR THE AC AND LINK
5303 44222 JMS ! X1012
5304 5303 JMP ! I
5305 44222 JMS ! X1012
5306 5305 JMP ! I
5307 5702 JMP ! SYNC
/
5310 00000 ISELOOP, 00000 CLA CLL /CLEAR THE AC AND LINK
5311 73000 TAD KT1CPS
5312 11113 DCA REGF
5313 3045 IAC
5314 70001 NOP
5315 70000 ISZ REGD
5316 20043 JMP ! I
5317 5314 ISZ REGF
5318 20045 JMP ! I
5319 5314 ISZ REGF
5320 5710 JMP ! ISELOOP
5321 5714
5322 5710
/
5323 00000 PIG03, 00000 CLA CLL /CLEAR THE AC AND LINK
5324 73000 TAD PRET2
5325 13355 DCA 2
5326 30002 ION
5327 60001 NOP
5328 70000 SKP
5329 70001 ISZ PIG03
5330 70000 IOP
5331 7410 RETC,
5332 23223 RETC, IOP
5333 60002 JMP ! PIG03
5334 5723
/
5335 9332 PRETC, RETC
/ PIG04, 00000 CLA CLL /CLEAR THE AC AND LINK
5336 00000 TAD PRET2
5337 73000 DCA 2
5338 13447 ION
5339 30002 NOP
5340 13447 ISZ PIG04
5341 30002 IOP
5342 60001 NOP
5343 70000 ISZ PIG04
5344 23366 RETC,
5345 60002 IOP

```

10 V142 220 OCT 73 9155 PAGE 1062

5346 5756 / JMP 1 P1604
5347 5345 / PRETD, RETD
5350 0000 10TS,
5351 6132 6132
5352 6134 6134
5353 6132 6132
5354 6134 6134
5355 6132 6132
5356 6134 6134
5357 5750 / JMP 1 10TS
5360 0000 10TS1,
5361 6133 6133
5362 6136 6136
5363 6133 6133
5364 6136 6136
5365 6133 6133
5366 6136 6136
5367 5760 / JMP 1 10TS1
5370 0000 10TS2,
5371 6133 6133
5372 6137 6137
5373 6133 6133
5374 6137 6137
5375 6133 6133
5376 6137 6137
5377 5770 / JMP 1 10TS2
5400 0000 / *5400
5401 6134 6134
5402 7040 7040
5403 6130 6130
5404 7040 7040
5405 6134 6134
5406 7040 7040
5407 6130 6130
5410 7040 7040
5411 6134 6134
5412 5600 / JMP 1 10TS3
5413 0000 / CLOCK,
5414 7604 LAS
5415 0007 AND K0007
5416 3095 DCA CLOCKS
5417 5613 JMP 1 CLOCK

/ROUTINE TO TYPE OCTAL NUMBERS
/ENTER WITH NUMBER IN AC AND LINK 0
/OCTEL, 0000

PAL18 V142 22:00CT-73 9195 PAGE 1-63

5421 7006 RTL
5422 7006 RTL
5423 3041 DCA REGB
5424 1130 TAD K7774
5425 3042 DCA REGC
5426 1041 TAD REGB
5427 0007 AND K0007
5428 1123 TAD K0200
5429 4507 JMS I XTYPE
5430 1041 TAD REGB
5431 4507 /GET NUMBER
5432 1041 TAD REGB
5433 7006 RTL
5434 7004 RAL
5435 3041 DCA REGB
5436 2042 ISZ REGC
5437 5226 JMP I 'S1'
5440 5620 JMP I 'OCTEL'
/ROUTINE FOR CRLF
5441 0000 CRLF,
5442 7300 CLA CLL
5443 1134 TAD K0215
5444 4507 JMS I XTYPE
5445 1135 TAD K0212
5446 4507 JMS I XTYPE
5447 5641 JMP I CRLF
/ROUTINE TO TYPE CLOCK
5450 0000 POPR,
5451 7300 CLA CLL
5452 1262 TAD KTAOCK
5453 1895 TAD CLOCKS
5454 3255 DCA I+1
5455 1262 TAD KTAOCK
5456 4304 JMS I XGOTEL
5457 4306 JMS I XPRINT
5458 6226 RMES
5461 9690 JMP I PQPR
5462 1263 KTAOCK, TAD CLKNO
/CLKNO, 0001
5463 0001 CLKNO, 0001
5464 0050 0050
5465 0100 0100
5466 0120 0120
5467 0200 0200
5470 5000 5000
/ROUTINE TO SORT ERROR MESSAGES
5471 0000 SORT,
5472 7300 CLA CLL
5473 4501 JMS I XCRLF
5474 1493 TAD I ERROR
5475 3044 DCA REGC

V142

PAGE 1a64

9155

22 OCT 73

JMS I XMESS
TAD I REGE
RTR
RTR

/GO PRINT TEST + ADDRESS

5476 4505
5477 1444
5500 7012
5501 7012
5502 7012 RTR MOVE IT TO BITS 8-11
5503 7012 RTR AND K0017 MASK 8-11
5504 0127 DCA REGE /SAVE POINTER
5505 3044 CLA CLL /CLEAR THE AC AND LINK
5506 7300 DCA REGE /GET POINTER
5507 1044 TAD KTADM
5510 1326 DCA 1+1
5511 3312 TAD KTADM /MODIFIED BY TEST
5512 1326 DCA 1+3 /STORE MESSAGE POINTER
5513 3316 JMS I XCRLF
5514 4501 JMS I XPRINT /CRLF
5515 4506 JMS I XREG /PRINT MESSAGE
5516 0000 JMS I XREG /MODIFIED MESSAGE POINTER
5517 7300 CLA CLL
5520 1044 TAD REGE /GET MESSAGE POINTER
5521 1132 TAD K772 /IS IT GREATER THAN
5522 7620 SNL CLA
5523 5671 JMP I SORT
5524 4502 JMS I XREG
5525 5691 JMP I SORT
5526 1327 /KTADM, TAD KTMX

5527 6107 MES1
5530 6131 MES2
5531 6152 MES3
5532 6202 MES4
5533 6231 MES5
5534 6256 MES6
5535 6303 MES7
5536 6324 MES8
5537 6353 MES9
5540 6402 MES10
5541 6431 MES11

/ROUTINE TO PRINT TEST + ADDRESS

MESS, 0000 CLA CLL /CLEAR THE AC AND LINK
5542 0000 JMS I XCRLF
5543 7300 JMS I XPRINT /CRLF
5544 4501 JMS I XPRINT /GO PRINT TEST
5545 7506 THES TAD I ERROR /GET ERROR MESSAGE
5546 6046 DCA REGD /STORE MESSAGE POINTER
5547 1493 TAD I REGD
5550 5043 AND K0377 /MASK 4-11
5551 1443 JMS I XOCTRL /GO PRINT NUMBER
5552 6136 152 REGD /UPDATE POINTER
5553 4504 JMS I XPRINT /GO PRINT STARTING ADDRESS
5554 2043 JMS I XPRINT
5555 4506 AMES TAD I REGD
5556 6081
5557 1443

*AL1# V142 22 OCT 73 9155
 5560 4504 JMS ! XOCTEL
 5561 7300 CLA CLL
 5562 5742 JMP ! MESS

PAGE 1#65

/GO PRINT NUMBER
/CLEAR THE AC AND LINK

/ROUTINE TO PRINT AC

```

      5563 0000 PREG, 0000 /CRLF
      5564 4501 JMS ! XPRINT /GO PRINT MESSAGE
      5565 4506 GMES
      5566 6067 TAD SEND /GET GOOD AC
      5567 1070 JMS ! XOCTEL /PRINT IT
      5570 4504 JMS ! XPRINT /PRINT BAD AC
      5571 4506 GMES
      5572 6077 TAD RECV /GET BAD AC
      5573 1071 JMS ! XOCTEL /PRINT IT
      5574 4504 CLA CLL /CLEAR THE AC AND LINK
      5575 7300 JMP ! PREG
      5576 5763
      5600
      5600
      5601 0000 SETO, 0000 /GET JMP 1#2
      5602 1100 TAD JMP12 /SET FOR PI RETURN
      5601 0001 DCA 1
      5603 5600 JMP ! SETO
  
```

/ROUTINE TO TYPE LISTING
/ENTER WITH JMS +1 EQUAL TO START OF LIST

```

      5604 0000 PRINT! 0000 /CLEAR THE AC AND LINK
      5605 7300 CLA CLL
      5606 1004 TAD !PRINT# /SET FOR RETURN +1
      5607 2204 ISE PRINT /SAVE THE POINTER
      5610 3041 DCA REGB /GET THE CHARACTER
      5611 1441 TAD !REGB
      5612 0012 AND K7700 /MASK BITS 0#5
      5613 7450 SNA /END OF MESSAGE
      5614 5240 JMP EXIT /YES, EXIT
      5615 7500 SMA /IS AC MINUS
      5616 7020 CML /NO, SET THE LINK
      5617 7001 IAC
      5620 7012 RTR
      5621 7012 RTR
      5622 7012 RTR
      5623 4507 JMS ! XTYPE /PRINT THE CHARACTER
      5624 1441 TAD !REGB /GET THE WORD
      5625 0133 AND K0077 /MASK BITS 6#11
      5626 7450 SNA /END OF MESSAGE
      5627 5240 JMP EXIT /YES EXIT
      5630 1125 TAD K3740 /NO, ADD A CONSTANT
      5631 7500 SMA
      5632 1124 TAD K4100
      5633 1126 TAD K0240
      5634 4507 JMS ! XTYPE /TYPE THE CHARACTER
      5635 2041 ISE REGB /UPDATE WORD LIST
  
```

PAGE 1-66
 V142 22 OCT 73 9155 /CLEAR THE AC AND LINK
 5636 7300 CLA CLL /CLEAR THE AC AND LINK
 5637 5211 JMP PRINT\$
 5640 7300 /EXIT, CLA CLL /CLEAR THE AC AND LINK
 5641 5604 JMP IPRINT /YES EXIT
 /ROUTINE TO WAIT FOR OVERFLOWS
 /XWAIT, 0000 /SAVE THE AC
 5642 0000 DCA SAVAC /SAVE THE AC
 5643 3011 CLA CLL CMĀ RAL /SET FOR RETURN ADDRESS
 5644 7344 TAD XWAIT
 5645 1242 DCA XWAIT
 5646 3242 ISZ REGB
 5647 2041 ISZ REGF
 5650 5256 JMP RETURN
 5651 2045 CLA CLL CMĀ TAC RAL
 5652 5256 ISZ REGB
 5653 7325 TAD XWAIT
 5654 1242 DCA XWAIT
 5655 3242 ISZ REGF
 5656 1011 RETURN, TAD SAVAC /UPDATE FOR ERROR RETURN
 5657 5642 JMP I XWAIT
 /SHLASI, 0000
 5660 0000 LAS
 5661 7604 LAND K0010 /CHECK FOR EXTERNAL CLOCK SCOPE LOOP
 5662 0142 SZA CLA /ENTER SCOPE LOOP
 5663 7649 JMP CLKIN
 5664 5325 LAS
 5665 7604 LAND K0020 /CHECK FOR EXTERNAL PULSE SCOPE LOOP
 5666 0149 SZA CLA /ENTER SCOPE LOOP
 5667 7649 JMP EXTER
 5668 5313 CLA CLL CMĀ /AC TO 7777
 5669 7340 KTCPS
 5670 3113 LAS
 5671 7340 LAND K6007
 5672 3113 SZA CLA /TEST SCHMITT
 5673 7604 JMP 1#3
 5674 0114 TAD KPRMT1
 5675 7640 DCA KTCPS
 5676 5301 LAS /GET HIS SWITCHES
 5677 1151 SPA CLA /GET BIT 1
 5700 3113 JMP I SHLAS /TEST OK&EP
 5701 7604 SPA CLA /GET HIS SWITCHES
 5702 7004 LAS /TEST OK&EP
 5703 7710 SPA CLA /TEST OK&EP
 5704 5660 JMP I SHLAS /TEST OK&EP
 5725 2660 SPA CLA /TEST OK&EP
 5706 7604 ISZ SHLAS /TEST OK&EP
 5707 7710 SPA CLA /TEST OK&EP
 5710 5660 ISZ SHLAS /TEST OK&EP
 5711 2260 JMP I SHLAS /TEST OK&EP
 5712 5660 /EXTER, CLA CLL CMĀ /TEST OK&EP
 5713 7340 JHS I XIOTD /TEST 6133, CLAB
 5714 4427 CLA CLL
 5715 7300 TAD K0040
 5716 1137

```

5717 1147 TAD K0600 /GET ENABLES
5720 4425 JMS 1 XIOTP /IOT 6132, CLOE
5721 4424 JMS 1 XIOTE /IOT 6131, CLSK
5722 5321 JMP 1 P1 /WAIT FOR OVERFLOW
5723 6007 JMP EXTER /CAF OR CLEAR THE WORLD
5724 5313 /CONTINUE WITH SCOPE LOOP

5725 7340 CLKIN, CLA CLL CMĀ /AC TO 7777
5726 4427 JMS 1 XIOTG /IOT 6433, CLAB
5727 7300 CLA CLL
5730 1613 TAD K0100 /GET ENABLES
5731 4426 JMS 1 XIOTP1 /IOT 6132, CLOE
5732 4424 JMS 1 XIOT2 /IOT 6131, CLSK
5733 5332 JMP 1 P1 /WAIT FOR OPERATOR
5734 6007 6007 /CAF OR CLEAR THE WORLD
5735 1006 TAD K0207 /TTY SIGNAL
5736 4507 JMS 1 XTYPE /LOOP
5737 5325 CLKIN

5740 0000 PASS, 0000 /CRLF
5741 4501 JMS 1 XCRLP /PRINT MESSAGE
5742 4506 JMS 1 XPRINT
5743 6014 PHES
5744 6007 6007
5745 5740 JMP 1 PASS

5746 0000 CTAD, 0000 /GET SELECTED CLOCK
5747 1095 TAD CLOCKS
5750 1354 TAD CLTAD
5751 3746 DCA 1 GTAD
5752 2346 ISZ GTAD
5753 5746 JMP 1 GTAD

5754 5795 CLTAD, CLTAD +1
5755 6000 6000
5756 1612 1612
5757 4776 4776
5758 5367 5367
5761 7306 7306
5762 7747 7747
5763 4000 4000
5764 1527 1527
5765 4552 4552
5766 5217 5217
5767 7276 7276
5770 7741 7741

5771 0000 TIMCLK, 0000
5772 7604 LAS
5773 0114 AND K6007
5774 7650 SNA CLA
5775 1166 TAD PATCH
5776 1012 TAD K7700
5777 5791 JMP 1 TIMCLK

```

V142

22 OCT 73 9155 PAGE 1 of 68
OKMES, TEXT ?OK&E CLOCKS DIAGNOSTIC?

6000	0413	6001	7005	6002	4003	6003	1417	6004	2313	6005	2340	6006	0411	6007	0107	6010	1617	6011	2324	6012	1103	6013	0000	6014	0413	6015	7005	6016	4020	6017	0123	6020	2349	6021	0317	6022	1520	6023	1405	6024	2405	6025	0000	6026	4003	6027	2023	6030	4003	6031	1417	6032	0373	6033	4023	6034	0514	6035	0503	6036	2405	6037	0440	6040	0231	6041	4017	6042	2005	6043	2201	6044	2417	6045	2200	6046	2405	6047	2324	6050	4000	6051	4000	6052	0111	6053	1405	6054	0454	6055	4023	6056	2401	6057	2224	6060	1116	6061	0740	6062	0104	6063	0422	6064	0523	6065	2340	6066	0000
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

PHES, TEXT ? CPS CLOCK SELECTED BY OPERATOR?

PHES, TEXT ? TEST ? TEST ?
AMES, TEXT ? FAILED, STARTING ADDRESS ?

PAL10

V142

6067

2410

0540

6070

0717

6071

7540

6072

1704

6073

4001

6074

0340

6075

7540

6076

0000

6077

4001

6078

1604

6100

4002

6101

0104

6102

0104

6103

4001

6104

0340

6105

7340

6106

0000

6107

0314

6110

1703

6111

1340

6112

2313

6113

1120

6114

4006

6115

0111

6116

1405

6117

0494

6118

4016

6119

1740

6120

2313

6121

1120

6122

1740

6123

1120

6124

4005

6125

3920

6126

0503

6127

2405

6130

0400

6131

0314

6132

1703

6133

1340

6134

2313

6135

1120

6136

4006

6137

0111

6138

1911

6144

2040

6145

0530

6146

2005

6147

0324

6150

0204

6151

0000

6152

2022

6153

1707

6154

2201

6155

1540

MESS, TEXT ? AND BAD AC # ?

MESS, TEXT ?CLOCK SKIP FAILED, NO SKIP EXPECTED?

MESS, TEXT ?PROGRAM INTERRUPT FAILED, NO INTERRUPT EXPECTED?

10 V142

22 OCT 73

9155

PAGE 1070

6156 1116
6157 2405
6160 2222
6161 2520
6162 2440
6163 0601
6164 1114
6165 0504
6166 5440
6167 1617
6170 4051
6171 1624
6172 0522
6173 2225
6174 2024
6175 4905
6176 3020
6177 0503
6200 2405
6201 0400
6202 2022
6203 1707
6204 2201
6205 1540
6206 1116
6207 2405
6210 2222
6211 2520
6212 2440
6213 0601
6214 1114
6215 0504
6216 5440
6217 1116
6220 2405
6221 2222
6222 2520
6223 2440
6224 0504
6225 2005
6226 0324
6227 0504
6230 0000
6231 0314
6232 1705
6233 1340
6234 1725
6235 2420
6236 2524
6237 4006
6240 0111
6241 1405
6242 0454
6243 4003
6244 1417

MESS, TEXT ?PROGRAM INTERRUPT FAILED, INTERRUPT EXPECTED?

MESS, TEXT ?CLOCK OUTPUT FAILED, CLOCK FREQUENCY FAST??

MESS 6, TEXT ?CLOCK OUTPUT FAILED, CLOCK FREQUENCY SLOW?

6245	0211J
6246	49006
6247	2205
6250	2125
6251	0516
6252	0331
6253	49006
6254	0123
6255	2400
6256	0314
6257	1703
6260	1349
6261	1725
6262	2429
6263	2524
6264	49006
6265	0111
6266	1405
6267	0454
6270	49003
6271	1417
6272	0315
6273	49006
6274	2205
6275	2125
6276	0316
6277	0331
6300	4923
6301	1417
6302	2700
6303	2418
6304	0318
6305	0103
6306	4927
6307	0123
6310	49003
6311	1001
6312	1607
6313	0304
6314	49002
6315	3149
6316	0140
6317	0314
6320	1703
6321	1349
6322	1117
6323	2400
6324	0314
6325	1703
6326	1349
6327	0225
6330	0606
6331	0522
6332	4922
6333	0507

MESS 7, TEXT ?THE IC WAS CHANGED BY A CLOCK STOP?

MESS 8, TEXT ?CLOCK BUFFER REGISTER AND AC TRANSFER FAILED?

6334 1123
 6335 2405
 6336 2240
 6337 0116
 6340 0449
 6341 0103
 6342 4924
 6343 2201
 6344 1623
 6345 0605
 6346 2240
 6347 0601
 6348 1114
 6349 1349
 6350 0504
 6351 0600
 6352 0600
 6353 0314
 6354 1703
 6355 0317
 6356 2516
 6357 2485
 6358 2240
 6359 2205
 6360 0711
 6361 0349
 6362 2324
 6363 0522
 6364 0522
 6365 0522
 6366 4001
 6367 1604
 6368 4001
 6369 0349
 6370 2422
 6371 0116
 6372 2306
 6373 0522
 6374 0522
 6375 0522
 6376 4006
 6377 0111
 6400 1405
 6401 0400
 6402 0314
 6403 1703
 6404 1349
 6405 0516
 6406 0102
 6407 1405
 6410 4622
 6411 0507
 6412 1123
 6413 2405
 6414 2240
 6415 0116
 6416 0449
 6417 0103
 6420 4624
 6421 2201
 6422 1623

MESS9, TEXT ?CLOCK COUNTER REGISTER AND AC TRANSFER FAILED?

MESS10, TEXT ?CLOCK ENABLE REGISTER AND AC TRANSFER FAILED?

PAL18	V142	22 OCT 73	9195	PAGE 1•73
	6423	0605		
	6424	2240		
	6425	0601		
	6426	1114		
	6427	0504		
	6428	0000		
	6431	0314		
	6432	1703		
	6433	1340		
	6434	2324		
	6435	0124		
	6436	2523		
	6437	4022		
	6440	0507		
	6441	1123		
	6442	2405		
	6443	2240		
	6444	0116		
	6445	0440		
	6446	0103		
	6447	4924		
	6450	2301		
	6451	1623		
	6452	0605		
	6453	2240		
	6454	0601		
	6455	1114		
	6456	0304		
	6457	0000		

22-061-73 9153 MAE 36/4

三

CLOCK SKIP FAILED,
DK8E CLOCKS SKIP EXPECTED
0001 CPS CLOCK SELECTED

TEST 0004 FAILED, STARTING ADDRESS 0273
CLOCK SKIP FAILED, STARTING ADDRESS 0273
DK8E CLOCKS SKIP EXPECTED

TEST 0050 FAILED,
CLOCK BUFFER REGISTER STARTING ADDRESS 1036
THE GOOD AC = 0120 AND AC TRANSFER FAILED
DK8E CLOCKS DIAGNOSTIC BAD AC = 7520 FAILED

TEST 0050 FAILED,
DK8E CLOCKS SKIP EXPECTED
0100 CPS CLOCK SELECTED

TEST 0004 FAILED,
CLOCK SKIP FAILED, STARTING ADDRESS 0273
DK8E CLOCKS SKIP EXPECTED
0050 CPS CLOCK SELECTED

TEST 0004 FAILED,
CLOCK SKIP FAILED, STARTING ADDRESS 0273
DK8E CLOCKS SKIP EXPECTED

TEST 0050 FAILED,
CLOCK BUFFER REGISTER STARTING ADDRESS 1036
THE GOOD AC = 0152 AND AC TRANSFER FAILED ←, SR 410/
DK8E CLOCKS DIAGNOSTIC BAD AC = 7552

DK8E CLOCKS DIAGNOSTIC SELECTED BY OPERATOR
0050 CPS CLOCK STARTING ADDRESS 0273
TEST 0004 FAILED, SKIP EXPECTED
CLOCK SKIP FAILED, SKIP EXPECTED
CLOCK SELECTION BY OPERATOR
DK8E CLOCKS SELECTED BY OPERATOR
0050 CPS CLOCK STARTING ADDRESS 0273
TEST 0004 FAILED, SKIP EXPECTED
CLOCK SKIP FAILED, SKIP EXPECTED
CLOCK SELECTION BY OPERATOR
DK8E CLOCKS SELECTED BY OPERATOR
0100 CPS CLOCK STARTING ADDRESS 0273
TEST 0004 FAILED, SKIP EXPECTED
CLOCK SKIP FAILED, SKIP EXPECTED
CLOCK SELECTION BY OPERATOR
DK8E CLOCKS SELECTED BY OPERATOR
0100 CPS CLOCK STARTING ADDRESS 0273
TEST 0004 FAILED, SKIP EXPECTED
CLOCK SKIP FAILED, SKIP EXPECTED
CLOCK SELECTION BY OPERATOR
DK8E CLOCKS SELECTED BY OPERATOR
0500 CPS CLOCK STARTING ADDRESS 0273
TEST 0004 FAILED, SKIP EXPECTED
CLOCK SKIP FAILED, SKIP EXPECTED
CLOCK SELECTION BY OPERATOR
DK8E CLOCKS SELECTED BY OPERATOR
0500 CPS CLOCK STARTING ADDRESS 0273
TEST 0004 FAILED, SKIP EXPECTED
CLOCK SKIP FAILED, SKIP EXPECTED
CLOCK SELECTION BY OPERATOR
DK8E CLOCKS SELECTED BY OPERATOR
0500 CPS CLOCK STARTING ADDRESS 0273
TEST 0004 FAILED, SKIP EXPECTED
CLOCK SKIP FAILED, SKIP EXPECTED
CLOCK SELECTION BY OPERATOR
DK8E CLOCKS SELECTED BY OPERATOR
0500 CPS CLOCK STARTING ADDRESS 0273

10

PAGE 176

9155

2200CT773

V142

AMES	6051	0127	LOOP	0077
AUTO10	0010	0140	MES1	6107
BEGIN	0200	0137	MES10	6402
BELL	5046	0133	MES11	6431
BNEAC	0215	0015	MES2	6151
BHES	6097	0006	MES3	6152
CLKIN	9725	0135	MES4	6202
CLKNO	5463	0134	MES5	6231
CLOCK	5453	0125	MES6	6256
CLOCKS	0075	0240	MES7	6303
CLRREG	5065	0260	MES8	6324
CLTAD	5754	0300	MES9	6353
CRUT	5441	0037	MESS	5542
CKYES	6000	0136	MES10	5000
EHLT1	5054	0050	NERR0	0072
EHLT10	5203	0000	OCTEL	5420
EHLT12	5212	0130	CUT	5015
EHLT2	5126	0144	OVER2	0061
EHLT3	5141	0146	OVER2A	0062
EHLT4	5145	0147	PASS	5749
EHLT5	5155	0255	PATCH	0116
EHLT6	5197	0100	PIC01	5255
EHLT7	5166	0200	PIC02	5270
ERRO	5020	0250	PIC03	5323
ERROR	0093	0000	PIC04	5336
ZXIT	5640	0145	PIC05	5254
EXTER	5713	0117	PIREY1	5264
PHZS	6926	0144	PIREY2	5277
GHES	6067	0141	PHES	6014
GTAO	5746	0141	POPR	5450
GIN	5043	0142	PREG	5563
YOTA	5102	0122	PRET1	9267
YOTB	5107	0132	PRET2	5301
YOTC	5174	0141	PRET5	5254
YOTD	5121	0042	PRETC	5335
YOTE	5127	0130	PRETO	5347
YOTF	5134	0132	PRINT	5604
YOTF1	5142	0143	RANDOM	5224
YOTG	5146	0151	RANDY	0025
YOTH	5194	0152	RECEV	0071
YOTI	5163	0150	RECA	0049
YOTK	5207	0153	RECB	0041
YOTS	5350	0154	RECC	0042
YOTS1	5348	0155	REGU	0043
YOTS2	5370	0156	RECE	0044
YOTS3	5400	0157	RECF	0045
ISZL0P	5310	0160	RETC	5332
JHP12	0100	0161	RET	5345
Y0006	0115	0162	RETURN	5056
Y0007	0007	0163	SAVAC	0011
Y0008	0142	0163	SEND	0070

SETO	5600	0046
SKPWAT	0046	5216
SNDRV	6402	5471
SORT	6402	SHLAS
SYNC	5302	1655
T113A	1646	T113B
T114A	1673	T114B
T114B	1664	T11A
T11A	0354	T120A
T120A	1751	T121A
T121A	1766	T122A
T122A	2714	T124B
T124B	2035	T122B
T123A	2043	T123A
T123B	2024	T124A
T124A	2072	T125A
T125A	2129	T127A
T125B	2102	T12A
T126A	2147	T130A
T126B	2125	T126B
T127A	2200	T127A
T12A	0356	T12A
T130A	2306	T130A
T133B	2273	T133A
T147A	2595	T147B
T147B	2537	T147B
T150A	2603	T150A
T150B	2565	T150B
T151A	2631	T151A
T151B	2613	T151B
T152A	2657	T152A
T152B	2641	T152B
T153A	2705	T153A
T153B	2667	T153B
T154A	2733	T154A
T154B	2715	T154B
T172A	3454	T172A
T172A1	3257	T172A1
T172B	3244	T172B
T173A	3365	T173A
T173A1	3306	T173A1
T173B	3273	T173B
T173B1	3267	T173B1
T174A	3336	T174A
T174A1	3341	T174A1
T174B	3326	T174B
T174B1	3323	T174B1

Y175A	3371	1605	TST110	3157
Y175A1	3394	1616	TST111	0431
Y175B	3361	1631	TST112	3177
Y175B1	3356	1642	TST113	3215
Y176A	3421	1663	TST114	3233
Y176A1	3424	1674	TST115	3262
Y176B	3411	1707	TST116	3275
Y176B1	3405	1722	TST117	3311
Y177A	3491	1737	TST118	3315
Y177A1	3494	1735	TST119	3344
Y177B	3441	1734	TST120	3377
Y177B1	3435	1721	TST121	3427
Y200A	3501	1722	TST122	0251
Y200A1	3504	1723	TST123	0441
Y200B	3491	1724	TST124	0457
Y200B1	3465	1725	TST125	0570
Y201A	3551	1726	TST126	0601
Y201B	3522	1727	TST127	0615
Y202A	3632	1728	TST128	0626
Y202A1	3632	1729	TST129	0637
Y202B	3650	1730	TST130	0647
Y202B1	3666	1731	TST131	0657
Y214A	3764	1732	TST132	0667
Y214A1	3764	1733	TST133	0673
Y215A	4003	1734	TST134	0677
Y216A	4082	1735	TST135	0711
Y22A	0473	1736	TST136	0711
Y230A	4265	1737	TST137	0722
Y45A	0775	1738	TST138	0733
Y45B	0763	1739	TST139	0746
Y46A	1014	1740	TST140	0746
Y46B	1005	1741	TST141	0751
Y47A	1035	1742	TST142	0755
Y47B	1024	1743	TST143	0755
Y50A	1052	1744	TST144	0756
Y50B	1040	1745	TST145	0756
Y79A	1332	1746	TST146	0756
Y79B	1322	1747	TST147	0756
Y71A	1351	1748	TST148	0756
Y71B	1341	1749	TST149	0756
Y1MCLK	37791	1750	TST150	0756
THES	6046	1751	TST151	0756
YST0	6221	1752	TST152	0756
YST1	6235	1753	TST153	0756
YST10	0337	1754	TST154	0756
YST100	1465	1755	TST155	0756
YST101	1501	1756	TST156	0756
YST102	1514	1757	TST157	0756
YST103	1530	1758	TST158	0756
YST104	1542	1759	TST159	0756
YST105	1592	1760	TST160	0756
YST106	1563	1761	TST161	0756
YST107	1594	1762	TST162	0756
YST11	2346	1763	TST163	0756

Y\$T76 1435
Y\$T77 1451
TYPE 5056
XBELL X CLOCK 00074
XCLREG 00060
XCRLF 00101
XCRS1 00191
XCRS2 00192
XCRS3 00193
XCRS4 00194
XCRS5 00195
XDKEP 00063
XGETH 00167
XGTAD 00067
XIOTA 00020
XIOTB 00021
XIOTC 00022
XIOTD 00023
XIOTE 00024
XIOTF 00025
XIOTF1 00026
XIOTG 00027
XIOTH 00030
XIOTI 00031
XIOTJ 00032
XIOTK 00033
XIOTS 00034
XIOTS1 00035
XIOTS2 00036
XIOTS3 00037
XIOTS4 00038
XH2SS 00046
XLAS 00047
XHIT1 00045
XPASS 00047
XOCTEL 00044
XOPR 00045
XP1G01 00047
XP1G02 00048
XP1G03 00051
XP1G04 00052
XP1G05 00053
XP1G07 00054
YREG 00192
XSETO 00164
YSNDRY 00096
YSORT 00163
KSYNC 00097
KTYPE 00107
XWAIT 5642

MAIL# V142 22 OCT 73

PAGE 1079

ERRORS DETECTED! 0

LINKS GENERATED! 0

RUNTIME! 21 SECONDS

3K CORE USED

